

Exhibit 1

JANUARY 2017

Curriculum Vitae

**Professor
Lambertus Hesselink, PhD**





**School building project
in rural Nepal, 2004**



**First Digital Holographic Data Storage System,
Science 1994**



**Co-designer Astronaut Memorial
"Space Mirror"
Kennedy Space Center, 1991**



**iLabs
First Internet
controlled optics
lab-in-a-box, 1998**



**Hubble Space
Telescope Committee**

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EXECUTIVE SUMMARY

LAMBERTUS HESSELINK, PhD

Professor

Electrical Engineering, Applied Physics, Aeronautics & Astronautics Depts

Born: Enschede, the Netherlands

Nationality: Dutch

Visa status: Permanent

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Stanford University

Stanford, California 94305-4035

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EDUCATION

Ph.D.	1977	California Institute of Technology Applied Mechanics and Physics/Applied Physics, Medical leave from Caltech, June 1974 – February 1975, severe burns over 50% of body Rehabilitation therapy, March 1975-January 1978
Eng.	1974	Twente Institute of Technology,
M.S.	1972	California Institute of Technology
B.S.	1971	Twente Institute of Technology Applied Physics
B.S.	1970	Twente Institute of Technology Mechanical Engineering

Languages: Fluent in English, Dutch, French and German

PROFESSIONAL CAREER

September 1980 - present	Assistant, Associate, and Full Professor of Electrical Engineering and, by courtesy, in the Applied Physics and Aeronautics and Astronautics Departments of Stanford University.
October 1977 - Oct. 1980	Instructor in Applied Physics, Senior Research fellow at Caltech.
March 1995 - April 1997	On leave from Stanford University, Founder, Chairman, CEO, CTO of Siros Technologies, Raised over \$50M in financing.
May 1997 - June 2001	Chairman Siros Technologies, Inc.
April 1994 - September 2000	Principal Investigator of DARPA funded \$53M Industry Consortium for the development of Digital Holographic Data Storage
October 1999 - 2007	Co-founder, Chairman, Senvid, Inc. Senvid was sold to Western Digital in 2007

PROFESSIONAL HONORS

Significant awards from scientific and professional societies include: Fulbright scholarship, Stheeman Price, Josephine de Karman Fellowship, DARPA award, NSIC award, Fellow of the OSA, Fellow SPIE, AIAA, N. California teacher of the year, Highest ranked teacher at Caltech in 1979, 1980, repeatedly listed on exceptional teaching evaluation list for EE department at Stanford, Five times best paper award from the IEEE, invited member of the Hubble Space Telescope Committee convened by NASA to fix the telescope, Member of the Air Force Scientific Advisory Board reporting directly to the Secretary of the Air Force, invited by Secretary of Air Force to attend and complete course at the Air War College, winner of Progressive Architecture Award and national competition for design of the Astronaut Memorial at Kennedy Space Center, student projects in EE347 won three

national optical design competitions, one of top 25 inventors at Stanford University, recipient of the “Best” Award for pioneering contributions to holographic data storage, Member of the Royal Dutch Academy of Arts and Sciences.

SCHOLARSHIP

Over 270 keynote and invited presentations at scientific meetings, organizer of over 80 scientific meetings, over 457 papers in scientific journals, over 15 book chapters, editor of Applied Optics, Applied Scientific Research, IEEE Transaction on Visualization, over 100 issued patents and pending patent applications worldwide, visiting Professor Tsinghua University China, Japan, Europe, over 45 PH.D graduates. Pioneered next generation optical data storage technology as follow-on to the \$20B annual revenue DVD market, now being developed by all major optical storage companies in the world, including Sony, Philips, Matsushita, Pioneer, Samsung, LG, and many others. Pioneered the first Internet controlled laboratory in 1998, which has lead to a worldwide effort on providing on-line teaching laboratories, with over 50 Universities participating in Europe and a similar number in the US. Technology developed for this application is now being commercialized by a start-up company in Silicon valley. Over 10 million users are projected to be using the technology worldwide in 2010. We pioneered the field of topological matrix and tensor visualization techniques in the middle 1990's, which has lead to a new branch in the IEEE meetings on Digital Image Processing and Graphics, with significant research efforts around the world. As a world-wide leader in three-dimensional imaging and signal processing, we developed and demonstrated the first tomographic imager of gaseous flows and made major contributions to 3-D solid-state up-conversion displays. Most recently we have improved the performance of nano-apertures by inventing a new C-shaped aperture that has over 1 million times power throughput improvement over round or square sub-wavelength apertures, leading to major advances in scanning near-field optical microscopy, optical data storage, biomedical sensing, chemical sensing, opto-electronic on-chip integration. Nano technology researchers around the world are now investigating the use of these apertures for a variety of applications.

EXPERTISE

Consulting to Industry and Government

Ultra-high density optical data storage, optical communication components and optical interconnects, optical information technology, nano-optics, digital image processing, Internet controlled instrumentation (CyberLab), member of several University committees, world renown expert witness in over 15 patent cases, testified to the Israeli Supreme Court for ½ hour, consultant to industry, NSF, member of US Air Force Scientific Advisory Board, Hubble Space Telescope Committee, Astronaut Memorial Co-designer.

Management (While on leave from Stanford)

Developed a personal open management style based on consensus building, collaboration and negotiation.

Started two successful high-tech companies, Siros Technologies and Senvid with financial backing from blue-chip rate VC, private and corporate sources. Managed all aspects of the business, including marketing, finance, technology and business development, product development, operations, human resources.

Devised business strategies and implemented the plans; successfully negotiated, managed and completed a \$53 M DARPA contract for the development of the next generation DVD technology; raised an additional \$54M in VC funding; managed startup growth from inception to over 67 employees; hired over 100 employees, including top management personnel; negotiated numerous business contracts, including major partnership contracts with multi-national Japanese companies such as TDK, Mitsubishi Chemical, and Olympus, as well as Lucent, EMC, and HP in the US.

Provided leadership to the Board of Directors, including Board members from top tier US VC firms New Enterprise Associates, Chemical Materials Enterprise Associates, Sequel Ventures, Austin Ventures, and multi-national companies including TDK, Lucent, Citicorp, Dow Chemical, HP, and EMC.

Developed patent strategies, carried out patent valuations for Siros technology, negotiated licensing agreements, and developed revenue models associated with these licensing efforts. Sold large patent portfolio to multi-national company.

Developed optical storage products, including novel read-write optical drives and media, holographic data storage devices, and volumetric optical drives. Took technology development effort to the prototype level.

Appeared in feature articles of Forbes and Red Haring magazines, and Senvid was selected by Venture One as one the 60 most promising angel funded companies in the US in 2000.

Initiated, Managed and executed sale of Senvid to Western Digital.

ACADEMIC CREDENTIALS

ACADEMIC HISTORY

Ph.D.	1977	California Institute of Technology Applied Mechanics and Physics/Applied Physics
Medical leave from Caltech	Jun '74 – Feb '75	Severe burns over 50% of body
Rehabilitation therapy	Mar '75-Jan' 78	
Eng.	1974	Twente Institute of Technology Applied Mechanics
M.S.	1972	California Institute of Technology Mechanical Engineering
B.S.	1971	Twente Institute of Technology Applied Physics
B.S.	1970	Twente Institute of Technology Mechanical Engineering

SCHOLARSHIPS AND ACADEMIC HONORS

1970	The Stheeman Prize for best academic performance, Twente Institute of Technology
1971—1974	Fulbright Scholar, recipient of IIE award and Dutch Government Fellowship award for studies abroad
1974—1975	Josephine de Karman Fellowship
1979, 1980	Triple star, *** Highest Teaching Rating at Caltech
1983	Award: Engineer of the Year 1982 AIAA Northern California chapter
1985	Award: Co-recipient of the Itek award for the paper "Holographic Reciprocity Law Failure", Appl. Opt. 23, 1984 issued by the Society of Photographic Scientists and Engineers

1985	Elected to Who's Who in Optical Science and Engineering
1986	Elected to Who's Who in California
1987	Elected to Who's Who in the West
1987	Elected to Personalities of the Americas
1987	Invited Visiting Professor at Tsinghua University, Beijing
1988	International Leaders of Achievement award
1988	Elected to Men of Achievement
1988	Elected to Who's Who of Emerging Leaders in America
1988	Elected to Five Thousand Personalities of the World
1988	Selected to be a member of the design team for the Astronaut Memorial in Orlando, Florida, after winning an international design competition
1989	Elected to American Men and Women of Science
1989	Recipient of the Progressive Architecture Award for the Astronaut Memorial
1989	Elected to International Directory of Distinguished Leadership
1989	Elected to Who's Who in the West
1990	Elected Fellow, Optical Society of America
1990	Elected invited Member of Image Processing Ad Hoc Committee to solve the Hubble Space Telescope problem
1990	Award: Recipient of the "Best Paper for the IEEE Visualization '90 Conference", Automated Topological Analysis of Fluid of Vector Sets, Helman, J.; Hesselink, L.
1991	Elected to Who's Who in Science and Engineering
1992	Award: Recipient of "Outstanding Paper for 1991 Award" for the Computer Society of the IEEE, "Automated Topological Analysis of Fluid Flows of Vector Sets, Helman, J.; Hesselink, L.
1992	Award: Recipient of the "Best Paper for the IEEE Visualization '91 Conference Award", Visualization of Second Order Tensor Fields and Matrix Data, Delmarcelle, T.; Hesselink, L.
1994-95	Elected to Who's Who Registry of Business Leaders
1994	Award: Recipient of "Best Paper Award from the IEEE Computer Graphics and Applications Society for 1993 for the the paper: "Visualizing second order tensor fields with hyperstreamlines," by Thierry Delmarcelle and Lambertus Hesselink; award presented at Vis '94 conference in Washington DC, October 1994.
1994	Award: Best conference paper for Visualization '94: "The topology of symmetric second-order tensor fields," by Thierry Delmarcelle and Lambertus Hesselink, presented in Washington DC, October 1994.
1994	Award: Director's Award for Significant Technical Achievement

(First Fully Automated Digital Holographic Data Storage System-HDSS), presented at 17th Systems and Technology Symposium San Francisco, CA, October 25, 1994, by Department of Defense - ARPA (Advanced Research Projects Agency).

- 1994 Selected by the Secretary of the Airforce to be a member of the Air War College, and completed summer course in preparation for civilian Air Force leadership role
- 1995-98 Elected Member of the Scientific Advisory Board of the United States Air Force reporting directly to the Secretary of the Airforce
- 1996 Elected to the Royal Dutch Academy of Arts and Sciences, April 1996.
- 1999 Award: National Storage Industry Leadership Award for 1999: "For exceptional vision and leadership of the NSIC HDSS and PRISM programs to establish proof of concept and develop the infrastructure for Holographic Data Storage"
- 1999 Recipient National Instruments Prize for Innovations in Education for developing the first Internet controlled laboratory
- 2000-2002 Elected to Who's Who in Executive and Professionals
- 2003-2004 Elected to America's Registry of Outstanding Professionals
- 2003-2005 Elected Fellow of SPIE, February 2004
- 2004-2005 Selected in Who'sWho in America, Who'sWho in Science and Engineering,
- 2005 Selected in Who'sWho in the West, Who'sWho in Finance and Business, Who'sWho in American Education, and Who'sWho in Executives & Professionals
- 2007 Best Award, for pioneering contributions to holographic data storage
- 2011 Top 1% of US inventors, with over 100 patents worldwide, many licensed
- 2011 Distinguished member of International Advisory Board, Yonsei University, Korea , 5 year appointment 2011-2016
- 2012 NSF selection as being in top 1% of all US inventors, with over 100 patents in US and worldwide, some of which used by millions of people each day
- 2013 Who is Who in America, Who is Who in the world, Who is Who business leaders, and related.
- 2013 NSF selection as being in top 1% of all US inventors, with over 100 patents in US and worldwide, some of which used by millions of people each day

PROFESSIONAL ACTIVITIES

- 1980-1988 Consultant to Hughes Aircraft Corporation, Microelectronics Corporation, Visulux Corporation, National Science Foundation, VSL Corporation, Physical Optics Corporation, Northrup and the Air Force
- 1984 Invited lecturer in lecture series on Digital and Optical Image Processing at the Von Karman

	Institute, Brussels, Belgium
1986	Invited lecturer in lecture series on Digital and Optical Image Processing at the Von Karman Institute, Brussels, Belgium
1981-1988	Presentation of short courses on holography and digital image processing in the Netherlands, Germany, China, Israel, England, Italy
1987	Invited Visiting Professor at Tsinghua University in Beijing, China
1987-1990	Member of advisory panel to the National Science Foundation
1988	Invited lecturer on Dynamic Optical Interconnects at the International School of Quantum Electronics, Erice, Italy
1988-1989	Member of the design team for the Astronaut Memorial in Orlando, Florida
1988-1990	Member of the Scientific Advisory Board to the Division of New and Emerging Technologies, the National Science Foundation
1994	Member of Editorial Board of the IEEE Transactions on Visualization and Computer Graphics (TVCG).
1995-98	Member of the Scientific Advisory Board of the United States Air Force reporting to the Secretary of the Airforce
1995-2000	Principal Investigator of a \$53M DARPA program on Holographic optical data storage, involving four Universities and five major industrial partners, including IBM, Kodak, GTE, Rockwell International and Texas Instruments. Directed a group of 136 scientists and engineers which resulted in a demonstration platform that still has the best performance of any data storage system today.

EMPLOYMENT RECORD

1978-1979	Member of the technical staff for Space and Communications Group, Hughes Aircraft Company.
1977-1978	Research Fellow in Fluid Mechanics, Graduate Aeronautical Laboratories, California Institute of Technology.
1978-1979	Instructor in Applied Physics in charge of APh 153 abc and Research Fellow in Fluid Mechanics at Caltech.
1979-1980	Senior Research Fellow in Fluid Mechanics and Instructor in Applied Physics at Caltech. In charge of the graduate course Modern Optics, APh 153 abc.
1981-1985	Assistant, Professor in Aeronautics and Astronautics and Electrical Engineering, and by courtesy in Applied Physics.
1983-present	Legal technology expert consultant in over 15 patent major suits, including a 30 minute presentation to and cross-examination by the Israeli Supreme Court
1985-1990	Associate Professor of Electrical Engineering and, by courtesy, in the Applied Physics and Aeronautics and Astronautics Departments of Stanford University.

1990-present	Professor (with tenure) in the Electrical Engineering and the Aeronautics and Astronautics Departments at Stanford University (joint appointment)
1995-1996	Founder, CEO, Chairman, and CTO of Siros Technologies, Inc., San Jose, California. (on sabbatical leave).
1996-2000	Chairman Siros Technologies
2000-2007	Chairman and Co-founder of Senvid, Inc.
2002-2003	Chairman and CEO Senvid Inc.
2002-2003	Member of the Board, Co-founder MultiDigit Corp.

EDITOR

Proceedings of the 26th International SPIE Conference, section on 3-D Processing and Display of Data, 1982
 Associate Editor for Journal of Applied Scientific Research, 1987-1996
 Topical Editor for Applied Optics, Optical Society of America, 1989-1994
 Topical Editor for Applied Sciences, 1989-1998
 Associate Editor for Applied Optics, January 1990-1994
 IEEE TVCG Editorial Board, Washington, DC, October 18, 1994.
 Associate Editor of IEEE Transactions on Visualization and Computer Graphics, 1995
 Guest Editor SIAM, special issue on Optical Data Storage
 Editor Materials Research Society, Symposium Proceeding Series, 2001.
 Editor Proceedings of IASTED, 2001
 Editor Proceedings IASTED, 2002
 Editor on Materials Research Society, Symposium Proceedings for 2003
 Editor Volume 803, MRS Advanced Data Storage Material and Characterization Techniques, 2004
 Editor, L. Hesselink, Proceedings of the Optical Data Storage Meeting 2010, SPIE, May 2010
 Editor, ODS 2012, Annual Meeting Tucson AR

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

Sigma Xi
 APS, American Physical Society
 OSA, Fellow Optical Society of America
 SPIE, Fellow of the International Society for Optical Engineering
 AIAA, American Institute for Aeronautics and Astronautics
 Member of the Royal Dutch Academy of Arts and Sciences

MEETING ORGANIZER (PARTIAL LIST)

1. Meeting organizer and co-chairman of the Twenty-Sixth International SPIE Meeting in San Diego, section on "3-D Processing and Display of Data", San Diego, CA, August 26—27, 1982.
2. Organizer of topical meeting on "Holography", OSA, Honolulu, HI, April 1986.

3. Member of the local organizing committee of the Annual Meeting of the Optical Society of America, Santa Clara, CA, October 1988.
4. Organizer of meeting on "Visualization of Scientific Data", SPIE, January 1989.
5. Organizer of meeting on "Practical Holography", SPIE, January 1989/1990/1991/1992
6. Symposium Organizer on "Optical Interconnections for Computers", OSA Annual Meeting, Orlando, FL, October 15—20, 1989.
7. Organizer of session for "Experimental Techniques", APS 42nd Annual Meeting, Palo Alto, CA, November 19—21, 1989.
8. Chairperson for "Imaging", SPIE Conference, Los Angeles, CA, January 14—19, 1990.
9. Member of "Visualization" Panel, "Extracting Meaning from Complex Data" Conference, SPIE/SPSE
10. Symposium on Electronic Imaging, Santa Clara, CA, February 12—16, 1990.
11. Organizer for NASA Scientific Visualization Workshop, Stanford University, Stanford, CA, June 11—13, 1990.
12. Chairperson for "3-D Visualization of Scientific Data", SPIE Conference, San Diego, CA, July 9—13, 1990.
13. Member of organizing committee on "Optical Computing" in Salt Lake City, Utah, March 4-6, 1991.
14. Organizer for NASA Scientific Visualization Workshop, Stanford University, Stanford, CA June 11-13, 1990.
15. Chairperson for "3-D Visualization of Scientific Data", SPIE Conference, San Diego, CA July 9-13, 1990.
16. Member of organizing committee on "Optical Computing" in Salt Lake City, Utah, March 4-6, 1991.
17. Member of the Technical Committee of the IEEE Visualization '90, '91, '92 Annual Meetings
18. Member of the Committee on Engineering in Biology and Medicine, 1993.
19. Member of the Program Committee, Sixth Eurographics Workshop on Visualization in Scientific Computing, Porto Conte, Italy, May 1995.
20. Co-Chairperson for Photonics West '95, Practical Holography IX, San Jose, CA, February 1995.
21. Chairperson (Tutorial) CLEO/QELS '95, Baltimore, MD, May 1995.
22. Member of Organizing Committee, Symposium on Data Storage: 1996 Annual Meeting of the Optical Society of America, October 20-15, 1996, Rochester, New York.
23. Chairperson IEEE/LEOS, Lasers and Electro-Optics Society, November 1995.
24. Member of organizing program committee, IS&T SPIE, Symposium on Electronic Imaging and Technology-Photonics West '96, San Jose, CA, January 1996.
25. Program Committee Chair, OSA Topical Meet, "Holography," Boston, MA, April 1996.
26. Member of Program Committee, International Symposium on Holographic Memories '96, May 1996.
27. Member organizing committee, ICO XVII '96 Optics for Science and New Technology, Taejeon, Korea, August 1996.
28. Presiding Chair, OSA Annual Meeting, ILS, XCII Optics & Imaging Center, Rochester, NY, October 1996.
29. Member of Program Committee, IEEE Visualization '96, San Francisco, CA, October 1996.
30. Program Committee Chair, Photonics West '97, San Jose, CA, February 1997.
31. Program Committee Chair, Photonics West '98, San Jose, CA, January 1998.
32. Program Committee Chair, Photonics West '99, San Jose, CA, January 1999.
33. Program Committee Chair, Photonics West '00, San Jose, CA, January 2000.
34. International Workshop on Holographic Data Storage, Stanford Organizer, Nice, France, March 8-11, 1999.
35. Member of the Organizing Committee, IEEE '01, Symposium on Parallel and Large Data Visualization & Graphics, San Diego, CA October 2001.
36. Conference Chair, IASTED '00-'03 Technical Committee on Telecommunications, Banff, Canada, July 2002.
37. Program Organizer, SPRC Annual Meeting, "Nanophotonics," Stanford Campus, September 2002, 2003.
38. Co-organizer OSA Topical Meeting, Optical Data Storage Conference, May 2003, Vancouver, Canada.
39. Meeting Organizer, CLEO Europe EQEC 2003, Symposium on Optical Storage, Munich, Germany, June 2003.
40. Conference Chair, IASTED WOC 2003, Wireless and Optical Communications Conference, July 2003, Banff, Alberta, Canada.
41. Moderator and Panel Organizer, Stanford Nanophotonics Workshop, January 24, 2004.
42. Program Committee Member of the 2nd IASTED International Conference on Communication and Computer Networks (CCN 2004), Cambridge, MA, November 2004.
43. Program Committee Member of the IASTED International Conference on Communications, Internet and Information Technology (CIIT2004), St. Thomas, Virgin Islands, November 2004.
44. Chair OSA bi-annual meeting on photorefractives, PR'07
45. Chairman of the International ISOM/ODS 2011 OSA meeting, Hawaii, 2011
46. Founder and Sponsor of the Leen van Wijngaarden Prize Foundation, 2011
47. Chairman of the Leen van Wijngaarden Prize selection committee, 2011 till present
48. Ambassador of the Twente University, 2011 till present

49. Co-Founder of the Secure Content Storage Association, 2011
50. Distinguished member of International Advisory Board, Yonsei University, Korea , 5 year appointment 2011-2016
51. Advisor to the Dutch Government on energy issues, 2011 till present
52. 3D Editorial Board Member, 3DMR, Korea, 2011 till present
53. Member of the International Advisory Board, CC3DMR Korea, 2011 till present
54. Co-Founder and Founding Chairman of the “Secure Content Storage Association”, a LLC formed between Warner Bros, Fox, Western Digital and Sandisk to develop the next generation of content storage platform for Premium Content (Follower to BluRay technology) , 2012
55. Chairman of the ODS 2012 meeting in Tucson Arizona, 2012
56. Ambassador of Twente University, 2012
57. Consultant to industry, 2012 till present
58. Editor Journal of 3-D imaging, 2012 till present
59. Member of the OSA Awards Committee, 2012 -2015
60. NSF Proposal Review committee, Expert witness in data storage and asbestos litigation, 2012 till present
61. Founding Chairman of the Secure Content Storage Association (SCSA) consisting of Warner Bros, Fox, WDC, Sandisk, Samsung, LG, Seagate, 2013
62. Ambassador of the University of Twente, 2013
63. Board member of Yonsei University Advisory Board, Korea, 2013
64. Editor Journal of 3-D Imaging, 2013
65. Member of OSA Leith Awards committee, 2013
66. Member of the Editorial Advisory Board of Optical Data Storage and Processing, 2013
67. Expert witness in major cases involving optical data storage and asbestos litigation, 2013

SIGNIFICANT RESEARCH AND PROFESSIONAL ACCOMPLISHMENTS

A. LASER-MATTER INTERACTION:

1. Laser propagation through a random medium. 1973-1980

At Caltech, in the 1970's I designed, built and conducted a very powerful experimental apparatus for studying the propagation of nonlinear acoustic and optical waves through a random medium. This study became a benchmark research effort, and still stands as the most comprehensive experimental and theoretical study in this area. The results of this study were disseminated worldwide at scientific meetings through over 16 invited lectures.

2. Femto second and nano second laser-matter interaction 1990-2005

In the early 1990's we designed, built and tested a novel pulse laser deposition system with unique optical diagnostics and controls in place that allowed us to study the interaction between nano-second and femto-second pulses and a variety of materials. We studied ablation of photorefractive media, and more recently silicon. We developed a new theoretical framework for understanding laser material removal at the femto and nano second time regimes. This work has gained significant interest in both the scientific community and industry as laser ablation in silicon is now used to machine intricate patterns in integrated circuit boards, and inkjet nozzles among other applications.

B. THREE-DIMENSIONAL IMAGING, ANALYSIS, STORAGE AND DISPLAYS

1. Three-dimensional flow visualization. 1981-2000

We developed the first numerical and experimental holographic analysis tools for understanding complex fluid flows and chemical reactions. We were the first to build a holographic display of a mixing jet and used these new tomographic imaging diagnostics techniques to investigate fluid flow behavior that lead to much improved understanding of fluid flows computed by numerical techniques.

2. Three-dimensional medical displays 1981- 1998

In the early 1980's we developed new holographic display techniques for visualization of medical data, such as NMR and CAT scans in conjunction with the medical school at Stanford University and Professors Goodman and Macovski. This work ultimately led to the first all-solid state three-dimensional display that uses up conversion rare-earth doped glasses. Currently this work still stands as the premier effort in solid state volumetric displays. We developed extensive new materials and system concepts in conjunction to address the complete system.

3. Topological visualization of vector and tensor data sets 1985-2008

In 1985 we published the first paper on using mathematical topology to analyze and display complex vector and tensor data sets. This work has pioneered a new area in research in the visualization community and graphics community worldwide. The IEEE now has an annual meeting in which vector and tensor field topology takes on a prominent role. Our pioneering first papers, which have won several awards from the IEEE are still the benchmarks by which all current topological papers are compared.

4. Holographic and optical data storage 1985-2008

In 1985 we started pioneering work on holographic data storage to develop the next generation optical data storage technology, which is now a \$20B industry. We have lead the word in fundamental material science and optical systems technology that has lead to the worlds highest performance storage system in 2000, when we demonstrated over 16 Gbit/sec data transfer rate and storage capacities of 100's of GB on a CD disk. Worldwide all major storage companies are now working on holographic data storage systems as the next generation optical storage technology. Our group is recognized around the world as the pioneering leader in this area. We have presented our work in over 100 invited papers and keynote talks at all major optical and magnetic storage meetings worldwide. The \$53 M DARPA HDSS and PRISM programs, founded and lead by me are still considered the best research effort in this area, worldwide and have formed the basis for smaller follow-on efforts around the world by every major optical storage system manufacturer, including Sony, Philips, Matsushita, Pioneer, Samsung, LG, and many others.

C. FUNDAMENTAL MATERIALS SCIENCE FOR USE IN OPTICAL SYSTEMS

1. Photorefractive physics and material science for optical interconnects and storage 1981-2004

In the early 1980's Professor Goodman and myself developed the first optical interconnects based on holographic and photorefractive materials for dynamic operation. This work lead to a worldwide effort in using optics for optical interconnects in electronic circuits, and has resulted in applications ranging from back-planes in computers to local area networks using holographic switches and connectors. We started and lead the way to using photorefractive materials for dynamic interconnects, by developing new and improved materials as well as new architectures for optical interconnects in free spaced, on planes and in volumes. In the middle 1980's we expanded this work to include holographic data storage using photorefractive and photopolymer media. We developed new fiber based photorefractive media for displays and storage, and we have grown extensive new crystals using dopants optimized for new functionality. For example, we developed LiNbO₃ media doped with rare-earth elements to achieve the first optically gated long-term storage in LiNbO₃ with an efficiency similar to that of LiNbO₃ doped with Fe. This lead to new long term storage capabilities of photorefractive media, and this work has been the leading example for new follow-on efforts worldwide. This work lead to my inclusion in the list of 40 top Dutch material Scientists of the last century.

2. Glass and polymer media for storage and display 1981-2004

Our research has been characterized by using an approach of addressing total system issues, including both materials and components needed to develop new systems having revolutionary new performance. To this end we have built a unique pulsed laser deposition system combined with MBE capabilities for making glass waveguides and thin film structures. We also built extensive crystal growth facilities for growing all types of photorefractive crystals and fibers. These facilities allowed us to grow many crystals with much improved performance for optical processing and data storage, including LiNbO₃ doped with different dopants for long term storage, fast processing and electrically gated diffraction. These media lead to new developments in optical communications and processing. We also developed new glass media by doping glass hosts with numerous rare earth dopants for the first three-dimensional all solid state display.

To augment the materials efforts we carried out extensive modeling of materials growth processing as well as the physical performance and response of these media to laser irradiation of femto, pico, nano and msec pulses.

D. NANO APERTURES AND SENSORS USING SURFACE PLASMON RESONANCES

1. Ten million times improved performance C-shaped nano apertures 2000-2008

In the late 1990's we discovered a new shaped nano aperture that has remarkable performance compared with conventional round and square sub-wavelength apertures, solving a long standing severe problem with nano-imaging. By morphing a rectangular aperture into that of a letter C-shape, the optical power throughput increases by a factor of over one million at the same near field optical spot size. These apertures allow NSOM systems to be much improved in terms of scanning speed and performance, and makes it feasible to store over 1 TB of data on an optical disk. C-shaped apertures are now investigated world wide for application in optically assisted magnetic recording, bio sensing, optical storage and NSOM applications, among others. The core of our work is to emphasize the fundamental optical and physical processes involved in the generation of these nano-sized spots, and using this understanding to develop new systems and physical applications. This work has lead to over 25 invited talks and key note addresses worldwide, and a number of patents, with researchers worldwide following up on our research.

2. 1000x times improved Goos-Hanchen surface plasmon resonance bio sensors 2002-2008

Surface plasmon resonance (SPR) sensors are widely used in bio engineering and science research for detecting species interactions and properties. These sensors rely on reflectivity properties of an optical beam near incident at near the total internal reflection angle. We discovered that by using the Goos-Hanchen effect we could improve the sensitivity of these sensors by two to three orders of magnitude. This increase in sensitivity now allows measurement of single molecule interactions that have the potential to open up whole new areas of biological research. We are working with Professor M. Davis in the School of Medicine to explore the use of ghSPR sensors for research on protein-protein interactions for immune system response. GE, having bought Biocor, among many others is now starting a new program on ghSPR sensing in conjunction with our lab.

3. Finite Difference Time Domain calculations of nano structures

We have developed and extensively tested a robust modeling program for calculating nano-sized optical structures. This program has allowed us to design, test and build novel optical apertures and structures having orders of magnitude performance improvements over previous apertures. This program is also combined with our previous work on topology to provide us with unique and very significant tool for obtaining insight into the physics of how nano structures work. This has lead to the innovations described above.

E. INTERNET ASSISTED LABORATORIES, ILABS 1995-2005

In 1998 we pioneered the first internet assisted laboratory, Cyberlab. We demonstrated for the first time that the internet could be used to remotely access and control an optics experiment. We built a complete stand-alone system by adopting existing internet technologies and by inventing a new architectural approach that makes it possible to

allow multiple users to seamlessly interact and carry out remote experiments as if they were physically present in the same laboratory. We invented new electronic notebooks, and control mechanisms that were needed for reliable control of instruments over a best-effort internet communication system. This work has received several prizes and we have presented key note lectures and over 50 invited talks worldwide on this topic since then. Our work has stimulated worldwide interest in iLabs and in Europe and the US several consortia have been formed involving over 50 universities to further develop this technology and test its pedagogical value for education and training. New internet technology developed during this project has formed the foundation of a startup company that is leading the way in novel remote access and sharing applications for individuals and small businesses.

F. LEGAL EXPERTISE 1983-2008

Over the years I have gained a reputation as a worldwide recognized expert on optics and holography. I have been an expert witness in over 15 major case and I have never lost a case. This includes expert witness services to multi-national corporations including Sony, Philips, Hughes Aircraft, and Dolby, as well as smaller firms. I was presented with an unusual invitation to argue the case from a technical perspective for the Israeli Supreme Court for 30 minutes. I was a key member of several teams which were awarded multi-million dollar damages awards.

I have also extensive experience in contract law. I have defined and negotiated multi-million dollar research agreements with major companies including TDK, Olympus, Mitsubishi Chemical, IBM, Kodak, Rockwell International. I single handedly negotiated and completed the Intellectual Property rights agreement and the research contract among twelve research partners in two \$53M DARPA programs.

As an inventor of over 60 patents and 34 more pending applications, I have gained significant patent law experience, in both prosecution, litigation and licensing. I have managed several large patent portfolios and I have successfully licensed patents to major corporations.

G. MANAGEMENT EXPERIENCE AND FUND RAISING

As founding Principal Investigator of two large \$53M DARPA programs, I managed and lead a research team over 130 scientists and engineers. As PI I was responsible for all financial and technical reporting, as well as all interfaces with the Government. This program was very successful and stimulated companies and universities worldwide to continue research on holographic data storage, leading to the first commercial holographic data storage system prototype in 2005. Holographic data storage is now considered one of the prime candidates as follow-on technology for DVD storage. The impact of our work on the \$20B optical storage industry has been profound and recognized around the world.

H. START-UP COMPANIES FOUNDED (WHILE ON LEAVE FROM STANFORD)

Started two high-tech companies with backing from blue chip VC, private and corporate sources. Developed and assisted in all aspects of the business, including marketing, finance, technology development, product development, operations, HR and business development. Raised over \$50M in VC funding, grew Siros to over 67 people, and hired over 100 employees, including top management personnel. Negotiated numerous business contracts, including major partnership contracts with Japanese industries such as TDK, Mitsubishi Chemical, and Olympus, as well as Lucent, EMC, and HP in the US.

Developed new technology in the data storage area, from the inception to complete prototype development, testing and preliminary manufacturing, as CTO at Siros.

Developed patent strategies, carried out patent valuations of Siros technology, negotiated licensing agreements, and developed revenue models associated with these licensing efforts, after Siros was sold.

Appeared in feature articles of Forbes and Red Haring magazines, and Siros was selected as one the ten top companies to watch.

Senvid is a spin-off company based on the iLabs technology and provides Personal Private Networks to individuals and small and medium businesses. Senvid's unique patented peer-to-peer secure technology will be widely used around the world by over 10 million users in 2008. Senvid was bought by Western Digital in 2007.

I.SIGNIFICANT GOVERNMENT CONSULTING

I have been a member of several NSF advisory Boards, advising the government on research policies as well as issues related to gender in science and engineering.

I was invited by Dr Sheila Widnall to become her personal invitee to the **Air War College**, as a prerequisite for membership in the **Air Force Scientific Advisory Board**. I reported directly to the Secretary of the Airforce on issues related to technology and systems for future warfare.

When the **Hubble space telescope** failed shortly after launch, I was invited by NASA together with a handful of other top scientists and engineers in the country to form a committee to investigate the cause of the failure, and to recommend solutions to the problem. Our committee ultimately diagnosed the problem correctly and proposed a corrective solution. This correction was successfully implemented making the Hubble space telescope perform beyond the original specifications.

Together with the architect firm of Wes Jones we won a nation-wide competition to design the **Astronaut Memorial** to honor the astronauts fallen in the US space program. We designed, built and delivered on time the Astronaut Memorial at the Kennedy Space Center, which was inaugurated by Vice President Quale of the first George Bush administration in 1991.

J. NOVEL DIFFERENTIAL PHASE CONTRAST 3-D X-RAY IMAGING

2012-present

We are developing a novel method for aviation security with applications in medicine, biology, and industrial inspection among others. Differential phase contrast (DPC) imaging holds promise for measuring the index of refraction of liquids using partially coherent X-ray sources. This technique has been developed for medical applications, but has very limited field of view (FoV), is not very efficient in the use of X-ray photons with losses over 75% due to the use of gratings required for DPC. We have developed a new X-ray source producing partially coherent X-rays up to 220KeV, and a mating detector that allows us to increase the FoV by an order of magnitude, increase X-ray throughput by over 4x and reduce the time and complexity for making DPC measurements. The heart of the newly developed technology is a photo-electron source that allows the generation of partially coherent X-rays from ~500fsec to CW.

We are investigating the underlying fundamental physical phenomena, the application of novel modeling techniques and we are pioneering a novel way in which DPC measurements can be obtained. At the same time we are working with industrial partners to transfer the technology developed in our laboratory into the market place.

K. NANO OPTICAL CONVEYOR BELT

2011-present

We have developed a novel way in which nano particles can be trapped using C-apertures invented in our laboratory in 2000. We invented, and then built and tested a Nano Optical Conveyor Belt (NOCB) that is capable of trapping and then transporting nano sized particles in a 2-D plane. This fundamental technology allows us to build novel

devices for sorting, for example DNA, proteins, nano particles for bio applications, for creating 3-D nano materials, and for stimulation of neuron activity in living organisms, among other applications. This is to our knowledge the first time that nano particles have been trapped and then transported in a controlled manner. The NOCB platform technology has the potential to become a cornerstone of the lab on a chip.

SCHOLARLY PUBLICATIONS

THESES

1. Hesselink, L. Flow visualization methods for the analysis of compressible flows. B.S. Thesis, 86 pages, Twente Institute of Technology, 1970 (in Dutch).
2. Hesselink, L. Calculations and measurements on dielectric resonant cavities for use in E.S.R. experiments. B.S. Thesis, 73 pages, Twente Institute of Technology, 1971 (in Dutch).
3. Hesselink, L. Noise production by a sonic hot jet (Part I), The propagation of a shock wave through a random medium (Part II). Eng. Thesis, 54 pages, Twente Institute of Technology, 1974 (in Dutch).
4. Hesselink, L. An experimental investigation of propagation of weak shock waves in random medium. Ph.D. Thesis, California Institute of Technology, 1977.

BOOKS AND MONOGRAPHS

1. Hesselink, L. Display technology, 3-D. Encyclopedia of Physical Science and Technology, 20 pages, Academic Press (refereed).
2. Hesselink, L. Digital image processing in flow visualization. Book chapter: Ann. Review of Fluid Mechanics, Vol. 20, pp. 421—485, 1988
3. Hesselink, L. Optical Image Processing. Book chapter: Handbook of Flow Visualization, chapter. 17, pp. 261—277, Hemisphere Publishing, 1989.
4. Hesselink, L. Optical Tomography. Book chapter: Handbook of Flow Visualization, chapter. 20, pp. 307—327, Hemisphere Publishing, 1989.
5. Hesselink, L. Nonlinear photorefractive effects and their application in dynamic optical interconnects and image processing. Plenum Publishing Corp., 1990.
6. Hesselink, L., “Holographic data storage in “Photorefractive Optics,” editor: Jean-Marc Fournir, Springer 2000.
7. Hesselink, L., “Holographic storage testbeds in Holographic data storage”, editors Coufal, Psaltis and Sincerbox, Springer Verlag 2000.
8. Hesselink, L.; Orlov, Sergei S., “Gated Optical Recording for Nonvolatile Holography in Photorefractive Materials,” P. Boffi, P. Piccinin, M. C. Ubaldi (Eds.): Infrared Holography for Optical Communications, Topics Appl. Phys. 86, 41-57 (2003), Springer-Verlag Berlin Heidelberg 2003.
9. Hesselink, L., “Digital holographic demonstration systems,” pg. 383-396, 2002, in Holographic Data Storage, Springer-Verlag, 2002, Editors Coufal, Psaltis and Sincerbox.

10. Hesselink, Mijiritskii, Ahner, and Levy, 'Advanced Data Storage Materials and Characterization Techniques,' Proceedings Materials Research Society, Vol 803, 2004.
11. Book: Hesselink, Mijiritskii, Ahner, and Levy, 'Advanced Data Storage Materials and Characterization Techniques,' Proceedings Materials Research Society, Vol 803, Dec 2004.
12. Hesselink, L. Proceedings of the ODS 2011, American Optical Society

JOURNAL PUBLICATIONS WITH PEER REVIEW

1. Hesselink, L.; White, B.S. Digital image processing of flow visualization photographs. *Appl. Opt.*, vol. 22, no. 10, p. 1454, May 1983.
2. Johnson, K.M.; Hesselink, L.; Goodman, J.W. Holographic reciprocity law failure. *Appl. Opt.*, Vol. 23, No. 2, pp. 218—227, January 1984.
3. Snyder, R.; Hesselink, L. Optical tomography for flow visualization of the density field around a revolving helicopter rotorblade. *Appl. Opt.*, Vol. 23, No. 20, pp. 3650—3656, October 1984.
4. Pender, J.; Hesselink, L. Phase conjugation in a flame. *Opt. Lett.*, Vol. 10, No. 6, pp. 264—266, June 1985.
5. Ochoa, E.; Hesselink, L.; Goodman, J.W. Real-time intensity inversion using two-wave and four-wave mixing in photorefractive BGO. *Appl. Opt.*, Vol. 24, No. 12, pp. 1826—1832, June 1985.
6. Kostuk, R.; Goodman, J.W.; Hesselink, L. Optical imaging applied to microelectronic chip-to-chip interconnections. *Appl. Opt.*, Vol. 24, No. 17, pp. 2851—2858, September 1985.
7. Ochoa, E.; Goodman, J.W.; Hesselink, L. Real-time enhancement of defects in a periodic mask using photorefractive BSO. *Opt. Lett.*, Vol. 10, No. 9, pp. 430—432, September 1985.
8. Johnson, K.M.; Armstrong, M.; Hesselink, L.; Goodman, J.W. The multiple-multiple exposure hologram. *Appl. Opt.*, Vol. 24, No. 24, pp. 4467—4472, December 1985.
9. Snyder, R.; Hesselink, L. High speed optical tomography for flow visualization. *Appl. Opt.*, Vol. 24, No. 23, p. 4046 (15 pages), December 1985.
10. Ochoa, E.; Vachss, F.; Hesselink, L. A higher order analysis of the photorefractive effect for large modulation depths. *JOSA A*, Vol. 3, No. 2, pp. 181—187, February 1986.
11. Collicott, S.; Hesselink, L. Anamorphic optical processing of multiple exposure speckle photographs. *Optics Lett*, Vol. 11, No. 7, pp. 410—412, July 1986.
12. Kostuk, R.K.; Goodman, J.W., Hesselink, L. Volume reflection holograms with multiple gratings: an experimental and theoretical evaluation. *Appl. Opt.*, Vol. 25, No. 23, pp. 4362—4369, December 1986.
13. Vachss, F.; Hesselink, L. Holographic beam coupling in anisotropic photorefractive media. *JOSA A*, Vol. 4, No. 2, pp. 325—339, February 1987.
14. Vachss, F.; Hesselink, L. Measurement of the electrogyratory and electro-optic effect in BSO and BGO. *Opt. Comm.*, Vol. 62, No. 3, pp. 159—165, May 1987.
15. Pender, J.; Hesselink, L. Sodium phase-conjugate oscillator in a combusting environment. *Opt. Lett.*, Vol. 12, No. 9, pp. 693—695, September 1987.

16. Kostuk, R.; Goodman, J.W.; Hesselink, L. Design considerations for holographic optical interconnects. *Appl. Opt.*, Vol. 26, No. 18, pp. 3947—3953, September 1987.
17. Wu, K.; Hesselink, L. Computer display of reconstructed three-dimensional scalar data. *Applied Optics*, Vol. 27, No. 2, pp. 395—404, January 1988.
18. Hesselink, L.; Sturtevant, B. Propagation of weak shocks through a random medium. *J. Fluid Mech.*, Vol. 196, pp. 513—553, April 1988.
19. Collicott, S.; Hesselink, L. Real time photorefractive recording and optical processing for speckle velocimetry. *Optics Letters*, Vol. 13, No. 5, pp. 348—350, May 1988.
20. Vachss, F.; Hesselink, L. Nonlinear photorefractive response at high modulation depths. *JOSA A*, Vol. 5, No. 5, pp. 690—701, May 1988.
21. Vachss, F.; Hesselink, L. Synthesis of a holographic image velocity filter using the nonlinear photorefractive effect. *Appl. Optics*, Vol. 27, No. 14, pp. 2887—2894, July 1988.
22. Agüí, J.; Hesselink, L. Holograms in motion, I: The effect of fluid motion on volume holograms. *JOSA A*, Vol. 5, No. 8, pp. 1287—1296, August 1988.
23. Agüí, J.; Hesselink, L. Holograms in motion, II: The diffraction capabilities of strained holograms. *JOSA A*, Vol. 5, No. 8, pp. 1297—1308, August 1988.
24. Vachss, F.; Hesselink, L. Selective enhancement of spatial harmonics of a photorefractive grating. *JOSA B*, Vol. 5, No. 8, pp. 1814—1821, August 1988.
25. Redfield, S.; Hesselink, L. Enhanced nondestructive holographic readout in SBN. *Optics Letters*, Vol. 13, No. 10, pp. 880—882, October 1988.
26. Hesselink, L.; Redfield, S. Photorefractive holographic recording in strontium barium niobate fibers. *Optics Letters*, Vol. 13, No. 10, pp. 877—879, October 1988.
27. Uhrich, C.; Hesselink, L. Optical surface inspection using real time Fourier transform holography in photorefractives. *Applied Optics*, Vol. 27, No. 21, pp. 4497—4503, November 1988.
28. Agüí, J.; Hesselink, L. Flow visualization and numerical analysis of a co-flowing jet: a three-dimensional approach. *Journal of Fluid Mech.*, Vol. 191, pp. 19—45, 1988.
29. Snyder, R., Hesselink, L.; Measurement of mixing fluid flows with optical tomography, *Optics Letters* (February 1988), vol. 13, no. 2, p. 87-9.
30. Wilde, J.; Hesselink, L. Optical associative memories based upon photorefractive crossbar switching. *Optics Letters*, 1988.
31. Wu, K.; Hesselink, L. Cubic spline contour surfaces of three-dimensional scalar data. *IEEE Transactions on Visualization*, June 1988.
32. Pender, J.; Hesselink, L. Conical emissions and phase conjugation in atomic sodium vapor. *IEEE Journal of Quantum Electronics*, Vol. 25, No. 3, pp. 395—402, March 1989.
33. Helman, J.; Hesselink, L. Representation and display of vector field topology in fluid flow data sets. *IEEE Computers; special issue on Visualization and Scientific Data*, Vol. 22, pp. 27—36, No. 8, August 1989.
34. Hesselink, L. "Digital image processing in flow visualization." in *Annual Review of Fluid Mechanics*. VOL.20. (Palo Alto, CA, USA: Annual Reviews), 1989

35. McRuer, R.; Wilde, J.; Hesselink, L.; Goodman, J.W. Two-wavelength photorefractive dynamic optical interconnect. *Opt. Lett.*, Vol. 14, No. 21, pp. 1174—1176, November 1989.
36. Hesselink, L. Real-time enhancement of submicron defects using photorefractives. *Optics News*, Vol. 15, No. 12, pp. 36—37, December 1989.
37. Hesselink, L. Dynamic optical interconnects. *Optics News*, Vol. 15, No. 12, pp. 44—45, December 1989.
38. Kostuk, R.; Goodman, J.W.; Hesselink, L. Optical interconnects. Book chapter: *Nonlinear Photonics*, Springer Verlag, Vol. 30, chapter. 3, 29 pages, published 1990.
39. Aronson, L.B.; Hesselink, L. Photorefractive integrated-optical switch arrays in LiNbO₃. *Opt. Lett.*, Vol. 15, No. 1, pp. 30—32, January 1990.
40. Wilde, J.P.; Hesselink, L. Measurement of electro-optic and electrogyratory effects in Bi₁₂TiO₂₀. *Journal of Appl. Physics*, Vol. 67, No. 5, pp. 2245—2252, March 1990.
41. Agüí, J.; Hesselink, L. The application of photochromic materials to the holographic measurement of velocity gradients in fluid flows sensitized with photochromic dyes. Accepted for publication by *Physics of Fluids A*, 39 pages, November 1989.
42. Hesselink, L.; Photorefractive fibers for optical data storage and processing. Invited paper, submitted to *IEEE Intl. Journal of Opto-electronics*; special issue on Optical, 42 pages, January 1990.
43. Pender, J.; Hesselink, L. Degenerate conical emissions in atomic sodium vapor. Accepted for publication by *JOSA B*, 15 pages, March, 1990.
44. Brand, A.J.; Hesselink, L. Auto-correlation measurements in three-dimensional fluid flow datasets. *Experiments in Fluids* 10, 55-59, 1990.
45. Uhrich, C.; Hesselink, L. Temperature, intensity and fluid of dependence of the absorption coefficient of BSO. *Opt. Lett.*, Vol. 15, No. 9, pp. 455-457, May 1990.
46. Yoda, Minami; Hesselink, L. A three dimensional visualization technique applied to flow around a delta wing. *Experiments in Fluids* 10, 102-108, 1990.
47. Levy, Y.; Degani, D; Seginer, A.; Graphical visualization of vortical flows by means of helicity, *AIAA Journal*, 1990, Vol 28, pp. 1347-1352.
48. Degani, D; Schiff, L. B.; Levy, Y.; Numerical prediction of subsonic, turbulent flows over bodies at large incidence, *AIAA Journal*, 1991, Vol 29, No. 12, pp. 2054-2061.
49. Helman, J. L.; Hesselink, L.; Visualizing Vector Field Topology in Fluid Flows. *IEEE Computer Graphics and Applications*, May 1991, vol. 11, no. 3, p. 36-46.
50. Aharoni, A. ; Bashaw, M.C.; Hesselink, L; Alleviation of Image Cross-Talk due to Striations in Photorefractive Data Storage. Submitted to *Optics Letters*, Dec. 1991.
51. Wilde, J.P.; Hesselink, L.; Feigelson, R.S. Diameter Stabilization of Czochralski-Grown Sr_{0.61}BA_{0.39}Nb₂O₆ (SBN) Crystals using Real-Time Computer Control. Submitted to and accepted by *J. of Crystal Growth*, 52 pages, March 1991.
52. Delbecq, J; Hesselink, L. Compaction and interpolation of image data with neural networks. Submitted *Neural Computation* 1991.

53. Wilde, J.P.; Jundt, D.H.; Galambos, L.; Hesselink, L.; Priority Communication Growth of $\text{Sr}_{.61}\text{Ba}_{.39}\text{Nb}_2\text{O}_6$ Fibers: New Results Regarding Orientation. J. of Crystal Growth, 114 , pp. 500-506, August 1991.
54. Degani, D.; Levy, Y.; Asymmetric turbulent vortical flows over slender bodies, AIAA Journal, 1992, Vol. 30, No. 9, pp. 2267-2273.
55. Yoda, M.; Hesselink, L.; Mungal, M. G.; The Evolution and Nature of Large-Scale Structures in the Turbulent Jet. Journal of Physics of Fluids, April 1992.
56. Wilde, J.P.; Hesselink, L.; Electric-Field Controlled Diffraction in Photorefractive Strontium Barium Niobate, Optics Letters, Vol.17, no.12; June 15, 1992.
57. Smith, Stephen L., Hesselink, L.; An Electro-Optic Based Disk Head Design for Fast Fine Tracking and Focusing. Submitted to JOSA A, March 10, 1992.
58. Uhrich, C., Hesselink, L. "Submicrometer defect enhancement in periodic structures by using photorefractive holography." Optics Letters (1 Aug. 1992), vol.17, no.15, p. 1087-9
59. Ning, P., Hesselink, L.; Vector Quantization for Volume Rendering. Submitted to the Boston Workshop on Volume Visualization, October 19-20, 1992.
60. Collicott, S.; Hesselink, L.; Diffraction Efficiencies Recorded on Photographic Film, Experimental Mechanics, pp. 34-37, March 1992.
61. Hesselink, L., "Holographic Data Storage Systems Implemented with Photorefractive Materials," Research Trends in Nonlinear and Quantum Optics, La Jolla, CA November 21-23, 1993.
62. Hesselink, L., "Holographic Data Storage Systems Implemented with Photorefractive Materials," Leos '93 Annual Meeting, November 18, 1993.
63. Hesselink, L., "Holographic Data Storage," Optical Society of America, Toronto, Canada, October 3-8, 1993.
64. Hesselink, L., "Visualization and Feature Extraction of Tensor Datasets," U.S. National Congress on Computational Mechanics, Washington, D.C., Aug 16-18, 1993.
65. Hesselink, L., "Holographic Data Storage Systems," Ukrainian Academy of Sciences - Fourth Topical Conference on Photorefractive Materials, Effects and Devices, Kiev, August 11-14, 1993.
66. Hesselink, L., "Holographic Data Storage Implemented with Photorefractives," Intermag '93 - International Magnetism, Stockholm, April 13-16, 1993.
67. Hesselink, L.; Ning, P.; Delmarcelle, T.; Volumetric visualization techniques for fluid mechanics, Proceedings on International Seminar on Imaging in Transport Processes, Athens, Greece, May 1992 (Published as "Imaging in Transport Processes", Samuel Sideman and Kunio Hijikata, eds., Begell House Inc. Publishers, March 1993).
68. Collicott, S.H., Hesselink, L. "Analysis and design of an anamorphic optical processor for speckle metrology and velocimetry." Applied Optics (1 April 1992) vol.31, no.10, p. 1646-59.
69. Delmarcelle, T.; Hesselink, L.; Visualizing second-order tensor fields with hyperstreamlines, IEEE Computer Graphics and Applications, vol. 13, no. 4, pp. 25--33, July 1993. Special issue on scientific visualization.
70. Aharoni, A.; Bashaw, M. C.; Hesselink, L.; Page and column packing capacities in angularly and wavelength multiplexed holography, to be submitted to Optics Communications October 1993 (not published).
71. Delmarcelle, T.; Hesselink, L.; A unified framework for flow visualization, in Computer Visualization (R. Gallagher ed.), chapter 7, CRC Press, 1994, Computer Visualization, Chapter 5, pgs. 129-170

72. Hesselink, L.; Delmarcelle, T.; Visualization of vector and tensor data sets, 1993 ONR Workshop on Scientific Visualization, Springer-Verlag, published 1994 in Scientific Visualization, Academic Press, Pgs. 419-433.
73. Peercy, Mark S.; Hesselink, L.; Wavelength Selection for True Color Holography, Applied Optics, October 10, 1994, vol. 33, no. 29, pgs. 6811-17.
74. Peercy, Mark S.; Zhu, Benjamin M.; Baum, Daniel R.; A System for Interactive Full Spectral Rendering. Siggraph 1994.
75. Hesselink, L.; Helman, J.; Ning, P.; Quantitative Image Processing in Fluid Mechanics, Proc. 2nd World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, June 1991.
76. Helman, J.; Hesselink, L.; Analysis of Fluid Flow Topology, Three-Dimensional Visualization and Display Technologies, Proc. SPIE Vol. 1083, Jan. 1989.
77. Bashaw, M. C., Aharoni, A., Hesselink, L.; Alleviation of image distortion due to striations in a photorefractive medium by using a phase-conjugated reference wave, Optics Letters (15 August 1992) vol. 17, no. 16, p. 1149-51 (Journal Article - English)
78. Delmarcelle, T., Hesselink, L.; Visualization Second Order Tensor Fields & Matrix Data, proceedings, Visualization '92, Cat. No. 92CH3201-1, Boston, MA, October 19-13, 1992, IEEE Computer Society Press, 1992, p. 316-23.
79. Aharoni, A., Bashaw, M. C.; Hesselink, L.; Distortion-Free multiplexed holography in striated photorefractive media, Applied Optics (10 April 1993) vol. 32, no. 11, p. 1973-82.
80. Bashaw, M. C.; Aharoni, A.; Hesselink, L.; Phase-conjugate replay for a-axis strontium barium niobate single-crystal fibers, Optics Letters Vol. 18, No. 23, pp. 2059-2061, December 1, 1993.
81. Bashaw, M. C.; Gurkan, K.; Heanue, J.F.; and Hesselink, L.; "Complementary Gratings for Multiplex Holography in Photorefractive Media, November 1994.
82. De Vré R.; Youden, K.E.; and Hesselink, L.; "Growth and Applications of Photorefractive Films," OSA August 1994.
83. Bashaw, M. C., Heanue, J. F., Hesselink, L., "Data storage based on orthogonal phase code multiplexing in volume holography," Applied Optics, 1995.
84. Jeganathan, Muthu, "A Survey of the State of the Art in Nonvolatile Data Storage," SPIE June 1995.
85. Huang, T.F.; Schwyn-Thöny, Silvia; Youden, Katharine E.; Hesselink, Laambertus; Harris, Jr., J.S.; "Growth of multi-layers of (Sr, Ba) Nb₂O₆ and conducting films on (001) MgO substrates," Materials Research Society Conference, San Francisco, CA April 1995.
86. Heanue, J. F.; Gurkan, K.; and Hesselink, L.; "Decision Feedback Viterbi Detection for Page-Access Optical Memories.", OL 1994
87. Ning, P.; Bloomenthal, J. L. Hesselink.; An evaluation of implicit surface tilers, to appear in IEEE Computer Graphics and Applications. 1994
88. Hesselink, L.; Bashaw, M. C., Optical memories implemented with photorefractive media, Optical and Quantum Electronics 25(9), special issue on Optical Memories and Neural Networks, S611 (1993).
89. Bashaw, M. C.; Aharoni, A.; Hesselink, L.; Limitations of phase-conjugate replay in volume-holographic phase-disturbing media, Optics Letters 18, 741 (1993).

90. Aronson, L.; Hesselink, L.; Integrated-Optical Switch Arrays in GaAs Based on Electrically Controlled Dynamic Free Carrier Gratings, *Applied Physics Letters*, February 1, 1993, vol 62, no. 5, p. 449-51.
91. Hesselink, L.; Bashaw, M. C.; Holographic data storage systems implemented with photorefractive materials, proceedings of LEOS '93, San Jose, CA, November 15-18, 1993, IEEE 1993, p. 82-3.
92. Hesselink, L.; Post, Frits H.; van Wijk, Jarke J.; Research Issues in Vector and Tensor Field Visualization, *IEEE Computer Graphics and Applications*, Vol. 14, No. 2 (ISSN 0272-1716), March 1994.
93. Thöny, S. Schwyn; Youden, K. E.; Harris, Jr., J.S.; Hesselink, L.; Growth and Characterization of Epitaxial Strontium Barium Niobate Thin Films Prepared by Pulsed Laser Deposition, submitted to *Applied Physics Letters*, April 29, 1994. Post deadline accepted for 1994 Electronics Materials Conference, Boulder, CO, June 22-24, 1994.
94. Jeganathan, M.; Bashaw, M. C.; and Hesselink, L., Evolution of Grating Envelopes and Traveling Wave Solutions in Bulk Photorefractive Media, submitted to *Physics Review Letters*, June 9, 1994.
95. Heanue, J. F.; Bashaw, M. C.; and Hesselink, L.; Volume Holographic Storage and Retrieval of Digital Image and Video Data, *Science Magazine*, Volume 265, pp. 749-752, August 5, 1994.
96. Bashaw, M.C.; Jeganathan, M.; Hesselink, L.; Theory of Two-Center Transport in Photorefractive Media for Low-Intensity, Continuous-Wave Illumination in the quasi-steady-state limit," *Journal of the Optical Society of America B (Optical Physics)*, September 1994, vol 11, no. 9, p. 1743-57).
97. Jeganathan, M.; Bashaw, M. C.; Hesselink, L.; Photoinduced Solitary Charge Waves in Bulk Photorefractive Media, submitted to *Physics News and Rapid Communications*, November 3, 1994.
98. Bashaw, M. C.; Heanue, J. F.; Aharoni, A.; Walkup, J. F.; Hesselink, L.; Crosstalk considerations for angular and phase-encoded multiplexing in volume holography, *Journal of Optical Society of America B*, April 19, 1994 (September 1994), vol. 11, no. 9, pgs. 1820-36.
99. Heanue, J. F.; Bashaw, M. C.; Hesselink, L.; Recall of Linear Combinations of Stored Data Pages Using Phase Code Multiplexing in Volume Holography, *Optics Letters*, July 15, 1994, vol. 19, no. 14, pgs. 1079-81.
100. De Vré, Raymond; Jeganathan, M.; Wilde, Jeffrey P.; Hesselink, Lambertus; Effect of Applied Fields on the Bragg Condition and the Diffraction Efficiency in Photorefractive Crystals, *Optics Letters*, June 15, 1994, pgs. 910-912.
101. Jeganathan, M.; Hesselink, L.; Diffraction from Thermally Fixed Gratings in Photorefractive Medium - Steady State and Transient Analysis, *JOSA B Special Issue on Photorefractive Effects, Materials and Devices*, March 28, 1994 (September 1994), vol. 11, no. 9, pgs. 1791-99.
102. Smith, S. L. and Hesselink, L., "Analytical model for grating dynamics in surface-charge-dominated Pockels readout optical modulator devices," *Journal of Optical Society of America (JOSA B)* 11, 1743 (1994).
103. De Vré, Raymond; Hesselink, Lambertus; Analysis of Photorefractive Stratified Volume Holographic Optical Elements, *Journal of Optical Society of America (JOSA B)*, pgs. 1800-1808, January 31, 1994.
104. Uhrich, C.; Hesselink, L.; Sub-Micron defect enhancement in Periodic Structures Using Photorefractive Holography: system design and performance, *Applied Optics*, February 10, 1994, vol. 33, p. 5, p. 744-57.
105. Downing, E.A. and Hesselink, L.; A Solid-State Three-Dimensional Upconversion Display, proceedings of 1994 Nonlinear Optics: Materials, Fundamentals and Applications, Waikoloa, HI, July 25-29, 1994, IEEE, 1994, p. 409-11.

106. Guilfoyle, P.S.; Hessenbruch, J. M.; and Hesselink, L.; Digital N⁴ & N⁵ Free Space Optoelectronic ROM, Photonics for Processors, Neural Networks, and Memories II, San Diego, CA, July 25-28, 1994, proceedings of the SPIE-The International Society for Optical Engineering, 1994, vol 2297, p. 460-7.
107. Aharoni, A.; Bashaw, M. C.; Hesselink, L.; Two-tone approach for prolonged readout of multiplexed photorefractive holograms, proceedings of 1994 Nonlinear Optics: Materials, Fundamentals and Applications, Waikoloa, Hawaii, July 25-29, 1994, IEEE, 1994, p. 188-90.
108. Jeganathan, M.; Bashaw, M. C.; and Hesselink, L., Trapping the Grating Envelope in Bulk Photorefractive Media, Optics Letters, September 15, 1994, Vol. 19, No. 18, pgs. 1415-17.
109. Aronson, Lewis B., Hesselink, L.; Analysis and Demonstration of an Integrated-Optical Switch Based on Dynamic Free Carrier Gratings: A Blueprint for a 100 x 100 Element Switch Array, IEEE Journal of Quantum Electronics, October 1994, vol. 30, no. 10, p. 2332-49.
110. Downing, E.A. and Hesselink, L.; Solid-State Three-Dimensional Volumetric Display, proceedings of 1994 International Workshop on Active-Matrix LCDs (AMLCD), Monterey, CA, October 10-13, 1994, SID, 1994, p. 321-4.
111. Yoda, M.; Hesselink, L.; Mungal, M.G.; Instantaneous Three-Dimensional Concentration Measurements in the Self-Similar Region of a Round High Schmidt Number Jet, Journal of Fluid Mechanics, November 25, 1994, vol 279, p. 313-50.
112. Hesselink, L.; "Holographic Storage & Retrieval of Digital Data" OSA (OC '95), Spatial Light Modulators & Application Topical Meeting, Salt Lake City, March 1995.
113. Hesselink, L.; "Holographic Storage Materials & Systems," American Physical Society, San Jose, CA, March 1995.
114. Hesselink, L.; "Materials for Digital Holographic Data Storage," NOMA, 2nd Mediterranean School & Topical Meeting, Milan, Italy, May 1995.
115. Hesselink, L.; "Topology of Tensor Fields," Graphicon '95, 5th International Conference on Graphics & Visualization, St. Petersburg, July 1995.
116. Hesselink, L.; "Volume Holographic Storage & Retrieval of Digital Data," International Symposium on Optical Memory '95, Kanazawa City Cultural Hall, Ishikawa, Japan, August 1995.
117. Hesselink, L.; "Review of Systems Design Issues of Digital Holographic Memories," OSA '95 Topical Meet, Photosensitivity & Quadratic Nonlinearity in Glass Waveguides: Fundamentals and Applications, Portland, OR, September 1995.
118. Hesselink, L.; "Digital Volume Holographic Data Storage Devices," SPIE-Photonics East '95, International Symposium on Information, Communications and Computer Technology Applications and Systems, Philadelphia, PA, October 1995.
119. ICASE workshop, "Visualizing Time-Varying Data, organizer, Williamsburg, VA, September 1995.
120. IEEE Computer Society, IEEE Visualization '95, tutorial "Visualization and Topology of Vector-Tensor Fields," Atlanta, GA October 1995.
121. Tang, T. F.; Youden, K. E.; Schwyn Thöny, S.; Hesselink, L. and Harris, Jr., J. S.; "Epitaxial Multilayers of (Sr,Ba) Nb₂O₆ and Conducting Films on (001) MgO Substrates,' Film Synthesis and Growth Using Energetic Beams, Symposium, San Francisco, April 17-20, 1995, Materials Research Society, 1995, p. 79-84.

122. De Vré, Raymond; Jeganathan, Muthu; Wilde, Jeffrey P.; Hesselink, Lambertus; Effect of applied electric fields on the writings and the readout of photorefractive gratings, *JOSA B*, pp. 600-614, Volume 12, No. 4, April 1995.
123. De Vré, Raymond; Jeganathan, Muthu; Hesselink, Lambertus "Diffraction properties of a reflection photorefractive hologram: comments," *Applied Optics*, Volume 34, No. 14, pp 2590-2592, May 10, 1995.
124. Singer, M.C.; Bashaw, M.C.; Heanue, J. F.; and Hesselink, L.; Geometric- and mosaic-wavelength multiplexing for volume holographic storage," *CLEO '95*, conference on Lasers and Electro-Optics, Baltimore, MD, May 22-26, 1995, Optical Society of America, 1995, p. 26-7.
125. L. Hesselink, Y. Levy, and Y. Lavin; "The Topology of Symmetric, Second-Order Tensor Fields," *Computers in Physics*, May-June 1995, vol 9, no. 3, p. 304-11.
126. Levy, Y.; Hesselink, L.; and Degani, D.; Anomalous Asymmetries in Flows Generated by Algorithms that Fail to Conserve Symmetry, American Institute of Aeronautics and Astronautics, Inc., *AIAA Journal*, Vol. 33, No. 6, June 1995.
127. Jeganathan, M.; Bashaw, M. C.; Hesselink, L.; Evolution and Propagation of Grating Envelopes During Erasure in Bulk Photorefractive Media, *JOSA B*, Volume 12, No. 7, pp. 1370-1383, July 7, 1995.
128. Heanue, J. F.; Bashaw, M. C.; and Hesselink, L., Sparse Selection of Reference Beams for Wavelength- and Angular-multiplexed Volume Holography, *JOSA A*, Volume 12, No. 8 pp 1671-1676, August 1995.
129. Bashaw, M. C.; Singer, R. C.; Heanue, J. F.; Hesselink, L.; Coded-Wavelength Multiplex Volume Holography, *Optics Letters*, September 15, 1995.
130. Bashaw, M. C., Heanue, J. F., Hesselink, L.; "Encrypted holographic data storage based on orthogonal-phase-code multiplexing," *Applied Optics*, Volume 34, No. 26, pp 6012-6015, September 10, 1995.
131. Seeber, W.; Downing, E.A.; Hesselink, L.; Fejer, M. M.; Ehrt, D.; "Pr/sup 3+/-doped fluoride glasses," *Journal of Non-Crystalline Solids*, vol 189, no. 3, p. 218-26, September 1995.
132. Heanue, J. F., Bashaw, M. C., Hesselink, L., "Channel codes for digital holographic data storage," *Journal Optical Society of America A*, Volume 12, No. 11, pp 2432-2439, November 1995.
133. Yeo, J.S.; Youden, K.E.; Huang, T.F.; Hesselink, L.; and Harris, Jr. J. S.; "Homoepitaxial and Heteroepitaxial growth of Sr_{0.61}Ba_{0.39}Nb₂O₆ Thin Films by Pulsed Laser Deposition," *Epitaxial Oxide Thin Films II*, symposium, Boston, MA, November 26-30, 1995, Materials Research Society, 1996, p. 225-30.
134. De Vré, Raymond and Hesselink, Lambertus "Diffraction analysis of layered structures of photorefractive gratings," *JOSA A (Optics, Image Science and Vision)*, Vol. 13, No. 2, pp. 285-295, February 1996.
135. Galambos, Ludwig; Hesselink, Lambertus; Feigelson, Robert S.; Erdei, S.; Cross, L. E.; Ainger, F. W.; Tanaka, I.; Kojima, H. "Inhomogeneity and segregation behavior in strontium-barium niobate fibers grown by laser-heated pedestal growth technique," *Journal of Crystal Growth*, Elsevier, October 1996, vol. 167, no. 3-4, pps. 670-6809, Part I
136. Galambos, Ludwig; Hesselink, Lambertus; Feigelson, Robert S.; Erdei, S.; Cross, L. E.; Ainger, F. W.; Tanaka, I.; Kojima, H. "Inhomogeneity and segregation behavior in strontium-barium niobate fibers grown by laser-heated pedestal growth technique," *Journal of Crystal Growth*, Elsevier, October 1996, vol. 167, no. 3-4, pps. 670-6809, Part II
137. Levy, Y., Hesselink, L.; Degani, D.; A Systematic Study of the Correlation Between Geometrical Disturbances and Flow Asymmetries, 33rd Aerospace Sciences Meeting and Exhibit, Reno, Nevada, *AIAA Journal*, Vol. 34, No. 4, April 4, 1996.

138. Y. Lavin, Y. Levy, and L. Hesselink: "The Topology of Three-Dimensional Symmetric Tensor Fields," Proceedings IEEE Visualization '96.
139. Heanue, John F.; Gurkan, Korhan; Hesselink, Lambertus; "Signal detection for page-access optical memories with intersymbol interference." Applied Optics, vol. 35, No. 14, pps. 2431-2438, May 10, 1996.
140. Smith, S. L.; Hesselink, L.; and Partovi, A, "Electric field screening in a multiple-quantum-well optically addressed spatial light modulator," Applied Physics Letters Vol. 68, No. 22, May 27, 1996.
141. Yeo, J. S.; Akella, A.; Hesselink, L., "Growth & Characterization of CsLiB₆O₁₀ Thin Films prepared by Pulsed Laser Deposition," 38th Electronics Materials Conference, Santa Barbara, CA, June 16-18, 1996.
142. Lande, D.; Heanue, J.F.; Catrysse, P.; Bashaw, M. C.; and Hesselink, L.; "A Wavelength-Multiplexed Holographic Data Storage System," CLEO '96, summaries of papers presented at the conference on Lasers and Electro-Optics, vol 9, 1996 Technical Digest Series, Anaheim, CA, June 2-7, 1996, Optical Society of America, 1996, p. 142-3.
143. Gurkan, K.; Heanue, J.F., and Hesselink, L.; "Data Detection for Page-Access Optical Memories," CLEO '96, Conference on Lasers and Electro-Optics, vol 9, 1996 Technical Digest Series, Anaheim, CA, June 2-7, 1996, Optical Society of America, 1996, p. 164.
144. Downing, et al, "A laser-diode driven, three-color, solid state 3-D display," CLEO '96, summaries of papers presented at the Conference on Lasers and Electro-Optics, vol. 9, 1996 Technical Digest Series, Anaheim, CA, June 2-7, 1996. p., 89-90
145. De Vré, R.; Heanue, J. F.; Gurkan, K.; Hesselink, L.; "Transfer functions based on Bragg detuning effects for image-bearing holograms recorded in photorefractive crystals," Journal of the Optical Society of America A (Optics, Image Science and Vision), July 1996, vol. 13, no. 7, p. 1331-44.
146. Downing, E.A.; Hesselink, L.; Ralston, John; Macfarlane, Roger; "A Three-Color, Solid-State, Three-Dimensional Display, Science Paper, American Assoc. Adv. Sci., August 30, 1996, Vol/Issue 273/5279, pgs. 1185-1189
147. Sandor Erdei; Ludwig Galambos, Isao Tanaka, Lambertus Hesselink, F. W. Ainger, L. E. Cross and R. S. Feigelson, "Segregation and Inhomogeneities in Photorefractive SBN Fibers, invited paper SPIE 1996 International Symposium on Optical Science, Engineering, and Instrumentation, Denver Convention Center, Denver, Colorado, August 5-6, 1996, Journal of Crystal Growth, Volume 2849, pps. 168-173
148. Heanue, J. F.; Bashaw, M. C.; Daiber, A. J.; Snyder, R.; and Hesselink, L.; "Digital holographic storage system incorporating thermal fixing in lithium niobate," Optics Letters, Vol. 21, No. 19, pps. 1615-1617, October 1, 1996.
149. Catrysse, P.B.; Bashaw, M. C.; Heanue, J. F.; Hesselink, L.; "System Issues in Digital, Phase Code Multiplexed Holographic Data Storage," Optical Society of America Annual Meeting, Rochester, October 20-25, 1996.
150. Lande, D., Heanue, J.F.; Catrysse, P.C.; Bashaw, M.C.; and Hesselink, L., "Digital Wavelength-multiplexed holographic data storage system," Optics Letters, Optical Society of America, 1 November 1996, vol. 21, no. 21, p. 1780-2
151. Bashaw, M. C., Heanue, J. F., Hesselink, L., "Organization of data for monochromatic multiplex volume holography," Journal Optical Society of America A, (Optics Image Science and vision) November 1996, vol. 13, no. 11, p. 2174-86
152. Hesselink, L.; Levy, Y.; and Lavin, Ying-Mei, "The topology of symmetric, second-order 3D tensor fields," IEEE Transactions on Visualization and Computer Graphics, January-March 1997, vol. 3, no. 1, p. 1-11

153. Yeo, J.S.; Huang, T. F., Hammond, R.; and Hesselink, L.; "Growth and properties of KNbO₃ thin films prepared by microwave plasma-assisted pulsed laser deposition," Ceramic Transactions, 1997.
154. Liu, Alice Y.; Lee, Myeongkyu; Bashaw, M. C.; Hesselink, L.; Feigelson, R. S.; "Observation and thermal fixing of holographic gratings in lead barium niobate crystal, Optics Letters, Optical Society of America, 1 February 1997, vol. 22 , pp 187-189.
155. Paraschis, L.; Liu, A.; Bashaw, M. C.; Hesselink, L.; "Resonant Two-Photon processes for nonvolatile holography in photorefractive crystals under continuous-wave illumination," Journal of the Optical Society of America B, (Optical Physics), Opt. Soc. America, October 1997, Vol. 14, No. 10, p. 2670-80.
156. Yeo, J.S.; Akella, A.; and Hesselink, L.; "Growth and Characterization of CsLiB₆O₁₀ Thin Films Prepared by Pulsed Laser Deposition, Materials Research Society, 1997
157. Smith, S. L.; Hesselink, L., "Transport modeling of multiple-quantum-well optically addressed spatial light modulators," Journal of Applied Physics, AIP, 1 March 1997, vol 81, no. 5, p. 2076-88
158. Bjornson, Eric S.; Bashaw, M. C.; and Hesselink, L. ; "Digital Quasi-Phasematched Two-Color Nonvolatile Holographic Storage," applied Optics, Optical Society of America, 10 May 1997, vol. 36, no. 14, p. 3090-106.
159. Lee, Myeongkyu; Liu, Alice Y.; Feigelson, Robert S.; Hesselink, L.; "Photorefractive properties of Pb_{0.5}Ba_{0.5}Nb₂O₆, CLEO/97 Technical Digest, p. 332, Conference on Lasers and Electro-Optics, Baltimore, MD., May 18-13, 1997.
160. Orlov, Sergei; Akella, Annapoorna; Hesselink, Lambertus; and Neurganokar, R.R., "High Sensitivity Non-volatile Two-Color Recording in Lithium Niobate," CLEO/QELS postdeadline paper, Baltimore MD, May 18-13, 1997.
161. Akella, Annapoorna; Sochava, Sergei L.; and Hesselink, L.; "Synthesis and characterization of photochromic organic films for holographic recording," Optics Letters, vol. 22, No. 12, pp. 919-921, June 15, 1997
162. Akella, A.; Downing, E.A.; and Hesselink, L.; "New Fluorindate Glass Compositions," Non-Oxide Glasses 10. Tenth International Symposium on Non-Oxide Glasses, Corning, NY, June 9-12, 1996, Journal of Non-Crystalline Solids (Netherlands), June 1997, vol. 213 & 214, p. 1-5.
163. Akella, Annapoorna; Honda, Tokuyuki; Liu, Alice Y., and Hesselink, L.; "Two-photon holographic recording in aluminosilicate glass containing silver particles," Optics Letters, Vol. 22, No. 13, July 1997
164. Lee, Myeongkyu; Liu, Alice Y.; Feigelson, Robert S.; Hesselink, L.; Route, Roger K.; "Measurement of OH-absorption and proton activation in lead barium niobate (Pb_{1-x}Ba_xNb₂O₆) crystals with applications to holographic storage, Physical Review B, APS through AIP, vol. 56, no. 13, p. 7898-904, October 1997.
165. Lavin, Yingmei; Levy, Yuval; Hesselink, Lambertus, "Singularities in Nonuniform Tensor Fields, " published in Proceedings IEEE Visualization '97, Phoenix, AZ, IEEE Computer Society Press, October 1997.
166. Yeo, J. S.; Yonezawa, Y.; Huang, T. F.; Hesselink, L.; and Harris, Jr., J. S., "In-situ reflection high energy electron diffraction studies of ferroelectric niobate thin film growth during pulsed laser deposition," Conference on Laser Ablation, Monterey, California, Paper Tu-VI. P25, 1997.
167. Lande, D., Orlov, S. S., Akella, A., and Hesselink, L.; "Digital Holographic Storage – System Incorporating Optical Fixing, Optics Letters 22, 1722, November 1997.
168. Orlov, S.S., Akella, A., Liu A., and Hesselink, L.; "Methods and Optimization of Photoactivated Recording, May 1997.

169. Lee, Myeongkyu; Feigelson, Robert S.; Liu, Alice; and Hesselink, Lambertus "Photorefractive properties of tungsten bronze ferroelectric lead barium niobate ($\text{Pb}_{1-x}\text{Ba}_x\text{Nb}_2\text{O}_6$) crystals, *Journal of Applied Physics*, June 1, 1998.
170. Liu, Alice; Hesselink, Lambertus; Lee, Myeongkyu; and Feigelson, Robert S., "Electro-optic and photorefractive two-beam coupling properties of lead barium niobate crystals, *Journal of Applied Physics* 83, 2826-30, March 1998.
171. Paraschis, Y. Sugiyama, A. Akella, T. Honda and L. Hesselink; "Properties of compositional volume grating formation with photoinitiated cationic-ring-opening polymerization, *SPIE Journal*, August 1998.
172. Batra, Rajesh; Kling, Kerstin; and Hesselink, Lambertus, "Topology Based Methods for Quantitative Comparisons of Vector Fields, *Transactions of the IEEE Computer Society*, 1998
173. Yeo, J.S.; Hesselink, L.; "Synthesis and Properties of Ferroelectric Niobate Thin Films Prepared by Pulsed Laser Deposition for Optical Waveguide," *Journal of Korean Physical Society*, Vol 32, February 1998, pp. S2369-S1371.
174. Yeo, J.S.; Akella, A.; Huang, T. F.; and Hesselink, L., "Growth of $\text{CsLiB}_6\text{O}_{10}$ thin films on Si substrate by pulsed laser deposition using SiO_2 and CaF_2 as buffer layers," *Journal of Electronic Materials*, 27, 127, March 1998.
175. Honda, T., Doumuki, T., Akella, A., Galambos, L. and Hesselink, L.; "One-color one-beam pumping of Er^{3+} -doped ZBLAN glasses for a three-dimensional two-step excitation display," *Optics Letters*, Vol. 23, pp. 1108-1110, July 15, 1998.
176. Honda, T. and Hesselink, L.; "3D Volumetric Displays by two-photon processes," *O plus E*, Vol. 20, No. 9, 1998, pp. 1039-1043 (in Japanese).
177. Lee, Myeongkyu, et al, "Growth of a new photorefractive material; tungsten-bronze ferroelectric lead barium niobate ($\text{Pb}/\text{sub } 1-x/\text{Ba}/\text{sub } x/\text{Nb}/\text{sub } 2/\text{O}/\text{sub } 6/$)" 9th International Meeting on Ferroelectricity, IMF-9, Seoul, Korea, August 1997, *Journal of Korean Physical Society*, February 1998, vol 32, suppl., Issue pp. S1221-3.
178. Liu, Alice; Lee Myeongkyu; and Hesselink, L.; "Light-induced absorption of cerium-doped lead barium niobate crystals," *Optics Letters* Vol 23, No. 20, p 1618-20, October 1998.
179. Lee, Myeongkyu, et al, "Growth of a new photorefractive material; tungsten-bronze ferroelectric lead barium niobate ($\text{Pb}/\text{sub } 1-x/\text{Ba}/\text{sub } x/\text{Nb}/\text{sub } 2/\text{O}/\text{sub } 6/$)" 9th International Meeting on Ferroelectricity, IMF-9, Seoul, Korea, August 1997, *Journal of Korean Physical Society*, February 1998, vol 32, suppl., Issue pp. S1221-3.
180. Lande, D., Orlov, S. S., and Hesselink, L.; "Two-Photon Apodization in Lithium Niobate" *Optics Letters* 23, No., 17, p. 1399-401, 1998.
181. Lande, D., Orlov, S. S., Akella, A., and Hesselink, L.; "Digital Holographic Store – System incorporating Optical Fixing, *Optics Letters* 22, 1722, November 1997.
182. Myeongkyu Lee, et al, "Formation and fixing of diffraction gratings in new photorefractive lead barium niobate ($\text{Pb}/\text{sub } 1-x/\text{Ba}/\text{sub } x/\text{Nb}/\text{sub } 2/\text{O}/\text{sub } 6/$) crystals" 9th International Meeting on Ferroelectricity, IMF-9, Seoul, Korea, August 1997, *Journal of Korean Physical Society*, February 1998, vol. 32, suppl. Issue pp. S427-9.
183. Loser, Thomas; Mewes, Dieter; Levy, Yuval; and Hesselink, Lambertus, "Flow Visualization with Textures," *Chemie Ingenieur Technik* (70), November 1998, S. 1382-1387.
184. Paraschis, L., and Hesselink, L., "Statistical analysis of polymer volume grating distortions in a holographic digital data storage system," *Advanced Optical Memories and Interfaces to Computer Storage*, San Diego, CA, July 22-24, 1998, SPIE, The International Society for Optical Engineering, vol. 3468, p. 238-47.

185. Paraschis, Y., Sugiyama, A., Akella, T., Honda and L. Hesselink; "Properties of compositional volume grating information with photoinitiated cationic-ring-opening polymerization," Advanced Optical Memories and Interfaces to Computer Storage, San Diego, July 22-24, 1998, SPIE, The International Society for Optical Engineering, vol. 3468, p. 55-61.
186. Bjornson, Eric S., et al, "Precompensated two-color digital holographic storage," Advanced Optical Memories and Interfaces to Computer Storage, San Diego Ca July 22-24, 1998, SPIE – International Society for Optical Engineering, vol. 3468, p. 14-19.
187. Lavin, Y., et al, "Feature comparisons of vector fields using Earth mover's distance," Proceedings of Visualization '98, Triangle Park, NC, October 18-23, 1998, Cat No 98CB36276, p. 103-9, 524 (Conference Paper).
188. Hesselink, L. and Orlov, S., "Photorefractive materials for nonvolatile volume holographic storage," Science Magazine, American Assoc. Adv. Science, November 6, 1998 vol 282, no. 5391, p. 1089-94.
189. Paraschis, L., Sugiyama, Y., Orlov, S., and Hesselink, L., "Physical properties of photopolymer recording for nonvolatile volume holographic storage," 18th Congress of the International Commission for Optics, San Francisco, CA, August 2-6, 1999, Proceedings of SPIE, vol. 3749, p. 448-9; and SPIE 3802-15, 1999.
190. Batra, Rajesh and Hesselink, L., "Feature comparisons of 3-D vector field using earth mover's distance," proceedings Visualization '99, San Francisco, CA, October 24-29, 1999, Cat. No. 99CB37067, p. 105-14.
191. Batra, Rajesh, Kling, K., and Hesselink, L., "Topology based vector field comparisons using graph methods" in Late Breaking Hot Topics IEEE Visualization '99 (A. Varsney, C. M. Wittenbrik, and H. Hagen, eds.), pp. 25-28, CS Press, Los Alamitos, CA, October 1999.
192. National Instruments Week, Education Day, "Cyberlab, A New Paradigm in Distance Learning," Bjornson, Eric; Rizal, Dharmarus, Hesselink, Lambertus, August 19, 1999, Austin, TX..
193. Hesselink, L. and Paraschis, L., "Fundamental issues related to digital holographic data storage," 1999 IEEE LEOS Annual Meeting Conference Proceedings, LEOS '99 12th Annual Meeting, San Francisco, CA November 8-11, 1999, p. 327-8, vol. 1, cat. No. 99CH37009).
194. R. Batra, K. Kling, and L. Hesselink, "Topology based methods for quantitative comparisons of vector fields," in Visual Data Exploration and Analysis VII (R. Erbacher, P. Chen, J. Roberts, and C. Wittenbrink, eds.), SPIE, January 2000.
195. Liu, Alice and Hesselink, L. "Enhanced photorefractive effects of cerium-doped lead barium niobate crystals," Journal of the Optical Society of America B (Optical Physics), April 2000, vol. 17, no. 4, p. 542-7.
196. CLEO 2000 Conference, "High Transfer rate (1 Gbit/sec) high-capacity holographic disk digital storage system," by S. S. Orlov, E. Bjornson, W. Phillips, Y. Takashima, X. Li, and L. Hesselink, Stanford University, San Francisco, California, May 7-12, 2000.
197. SSGRR-2000 Conference, "Cyberlab: A New Paradigm for Internet Learning," by Lambertus Hesselink, E. Bjornson and Dharmarus Rizal, L'Aquila, Italy, July 31-August 6, 2000.
198. Paraschis, L.; Sugiyama, Y.; Orlov, S.; Hesselink, L., "Holographic digital storage with sensitive and flexible photo-initiated polymerization recording." Conference on Lasers and Electro-Optics (CLEO 2000). Technical Digest. Post-conference Edition. TOPS Vol.39, 7-12 May 2000, San Francisco, CA, USA.
199. Orlov, S.S.; Bjornson, E.; Phillips, W.; Takashima, Y.; Li, X.; Hesselink, L., "High transfer rate (1 Gbit/sec) high-capacity holographic disk digital data storage system," conference on Lasers and Electro-Optics (CLEO 2000). Technical Digest. Post-conference Edition. TOPS Vol.39, 7-12 May 2000, San Francisco, CA, USA.

200. Hesselink, L., "Three dimensional recording (3DR) technology." Conference: 2000 Optical Data Storage, Conference Digest, 14-17 May 2000, Whistler, BC, Canada
201. Xiaochun Li, Fedor Dimov, William Phillips, Lambertus Hesselink, Robert McLeod, "Parallel associative search by use of a volume holographic memory," To be published in Proceedings of Applied Imagery & Pattern Recognition (AIPR) 2000, Washington DC, Oct.16-18, 2000.
202. Sergei S. Orlov, William Phillips, Eric Bjornson, and Lambertus Hesselink and Robert Okas, "Ultra-high Transfer Rate High Capacity Holographic Disk Digital Data Storage System," Proceedings of Applied Imagery & Pattern Recognition (AIPR) 2000, Washington DC, Oct.16-18, 2000.
203. S. Orlov, W. Phillips, E. Bjornson, L. Hesselink, and R. Okas, "Ultra-High Transfer Rate High Capacity Holographic Disk Digital Data Storage System," Proceedings of 29th Applied Imagery Pattern Recognition Workshop, October 2000, IEEE Computer Society, pp. 71-77.
204. X. Li, F. Dimov, W. Phillips, L. Hesselink, and R. McLeod, "Parallel Associative Search by Use of a Volume Holographic Memory," Proceedings of 29th Applied Imagery Pattern Recognition Workshop, October 2000, IEEE Computer Society, pp.78-83.
205. W. Phillips, S.S. Orlov E. Bjornson, P. Sundaram, L. Hesselink, and R. Okas. "Video demonstration of high data rate holographic disk storage system," OSA Annual Meeting, Providence RI, October 2000.
206. S.S. Orlov, W. Phillips, E. Bjornson, L. Hesselink, and R. Okas, "10 gigabit/second sustained optical transfer rate from a holographic disk digital data storage system," OSA Annual Meeting, Providence RI, October 2000.
207. Kim, In Gyo; Lee, Myeongku; Takekawa, Shunji; Furukawa, Yasunori; Kitmura, Kenji; Galambos, Ludwig; and Hesselink, Lambertus, "Volume Holographic Storage in Near-Stoichiometric LiNbO₃:Ce,Mn" Journal of Applied Physics Vol 39 (2000), pp. L1094-L1096, Part 2, No. 11A, November 2000.
208. L. Hesselink, "Digital Holographic Demonstration Systems by Stanford University and Siros Technologies," Holographic Data Storage, Coufal, Psaltis and Sincerbox, Eds, Springer 2000, pp 383-397.
209. Lim, Ki-Soo; Kim, Bok-Mi; Kim, Joong-Pyo; Hesselink, L.; Neurgaonkar, R.R., "UV-enhanced photorefractive sensitivity in Mn,Ce:LiNbO₃, SPIE Manuscript (4110-04), July 2000.
210. Galambos, Ludwig; Orlov, Sergei S.; and Hesselink, Lambertus and Furukawa, Yasunori; Kitamura, Kenji and Takekawa, Shunji, "Doubly Doped Stoichiometric and Congruent Lithium Niobate for Holographic Data Storage." Journal of Crystal Technology, 2000
211. Ji-Won Son, Sergei Orlov, William Phillips, Ludwig Galambos, Lambertus Hesselink, "Improved Lithium Niobate Films Deposited by Pulsed Laser Deposition for Waveguide Applications. Journal of Crystal technology, 2000
212. C. Denz, G. Berger, K.-O. Muller, T. Tschudi, S. Orlov, W. Phillips, L. Hesselink, "Content-addressable data storage in holographic memories based on phase-coded multiplexing." Journal of Neural Networks, 2000
213. S.S. Orlov and W. Phillips, "Hologram Fixing and Nonvolatile Storage in Photorefractive Materials," in Holographic Data Storage, Springer-Verlag Series in Optical Sciences vol 76, H. Coufal, D. Psaltis and G. Sincerbox, Eds, pp 127-148, (Springer, New York, 2000)
214. Ki-Soo Lim; Bok-Mi Kim; Joong-Pyo Kim; Hesselink, L.; Neurgaonkar, R.R., "UV-enhanced photorefractive sensitivity in Mn,Ce:LiNbO₃," Proceedings of the SPIE - The International Society for Optical Engineering; 2000; vol.4110, p.17-24.
215. Kim, I.G.; Lee, M.; Takekawa, S.; Furukawa, Y.; Galambos, L.; Hesselink, L., "Volume holographic storage in near-stoichiometric LiNbO₃:Ce,Mn," Japanese Journal of Applied Physics, Part 2 (Letters), vol 39, no. 11A, p. L1094-6, November 1 2000.

216. ISOM 2001, "Mechanisms for Enhancing Power Throughput from Nano-apertures for Near Field Optical Data Storage", Xiaolei Shi and Lambertus Hesselink, October 10-16, 2001, Taipei, Taiwan.
217. Tao, Lee, Kitamura, Hatano, Galambos and Hesselink, "Holographic properties of doped stoichiometric LiNbO₃ crystals, Fifth International Symposium on Optical Storage, SPIE Vol 4085, 0277-786X/01, 2001.
218. C. Denz, G. Berger, K.-O. Müller, T. Tschudi, S. S. Orlov, W. Phillips, and L. Hesselink, "Content-addressable data storage in holographic memories based on phase-coded multiplexing," presented at Photorefractive Materials Effects and Devices Conference, May 16, 2001, and published in Proceedings.
219. Ludwig Galambos, Sergei S. Orlov, Y. Furukawa, K., Kitamura, S., Takekawa, "Doubly doped stoichiometric and congruent lithium niobate for holographic data storage," *Journal of Crystal Growth*, July 2001.
220. Borg, Herman J.; Bussman, Konrad; Egelhoff, Jr., William F.; Hesselink, Lambertus; Majetich, Sara A.; Murdock, Edward S.I.; Stadler, Bethnie J.H.; Vazquez, Manual; Wuttig, Matthias; Xiao, John Q.; "Applications of Ferromagnetic and Optical Materials, Storage and Magnetoelectronics, volume 674 from the MRS Symposium Proceedings Series ISBN: 1-55899-610-9, Code 674-J, 2001.
221. Xiaolei Shi, Robert Thornton, Lambertus Hesselink, "A Nano-Aperture with 1000x Power Throughput Enhancement for Very Small Aperture Laser System (VSAL)", *Proc. SPIE*, 4342, 320-327, 2002.
222. Xiaolei Shi, Lambertus Hesselink, "Mechanisms for Enhancing Power Throughput from Planar Nano-Apertures for Near Field Optical Data Storage", *Jpn. J. Appl. Phys.* 41, No. 3B, 1632-1635, 2002.
223. J. W. Son, W. Phillips, L. Galambos, S. Orlov, and L. Hesselink, "Growth and Characterization of Lithium Niobate Waveguide by Liquid Phase Epitaxy" *Stanford Photonics Research Center Annual Meeting*, Sept. 2002.
224. ICOLA'02 Conference, Lambertus Hesselink, Xiaolei Shi, "Ultra-high Power Transmission Through a Single Nano-Aperture", International Conference on Opto-electronics and Laser Applications (ICOLA), Jakarta, Indonesia, October 2-3, 2002 (Invited).
225. M. Inoue and L. Hesselink, "Review and Introduction," *Journal of Magnetic Society of Japan*, vol.27, pp.635-646 (2002), in Japanese.
226. Hesselink, L.; Orlov, Sergei S., "Holographic shift multiplexing in thin volumetric media," *Journal of the Optical Society of America B (Optical Physics)*, vol. 20, no. 9, p. 1912-21, September 2003.
227. Hesselink, L.; Orlov, Sergei S., "Gated Optical Recording for Nonvolatile Holography in Photorefractive Materials," P. Boffi, P. Piccinin, M. C. Ubaldi (Eds.): *Infrared Holography for Optical Communications*, *Topics Appl. Phys.* 86, 41-57 (2003), Springer-Verlag Berlin Heidelberg 2003.
228. Hesselink, Lambertus; Rizal, Dharmarus; Bjornson, Eric; Paik, Sandy; Batra, Raj; Catrysse, Peter; Savage, Dan; Wong, Anthony; Stanford CyberLab: Internet Assisted Laboratories," *International Journal of Distance Education Technologies*, Vol. 1, No. 1, January-March 2003, Idea Group Publishing.
229. Son, Ji-Won; Yuen, Yin; Orlov, Sergei; Phillips, W.; Galambos, Ludwig; Hesselink, Lambertus; and Shur, Vladimir Ya; "Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy," *Optical Society of America*, submitted 2003.
230. Barilov, D; Shumelyuk, A; Hesselink, L; Sturman, B; Odoulov, S; "Coupling of orthogonally polarized waves and vectorial coherent oscillation in periodically poled LiNbO₃:y:Fe, *JOSA B*, vol 20, no. 8, p. 1649-55. (2003)
231. Orlov, Sergei S.; Hesselink, L., "Three-dimensional analysis of holographic shift multiplexing in thin volumetric media," *OSA Trends in Optics and Photonics Series*, 2003; v. 88, p. 1034-1036, Conference on Lasers and Electro Optics (CLEO); Postconference Digest; June 1-6, 2003, Baltimore, MD.

232. Hesselink, Lambertus and Inoue, Mitsuteru, "Digital Volume Holography and Optical Disk Storage System," Japanese publication, Vol, 27, November 5, 2003.
233. J.A. Matteo, D.P. Fromm, Y. Yuen, P.J. Schuck, W.E. Moerner, L. Hesselink., "Spectral Analysis of Strongly Enhanced Visible Light Transmission Through Single C-Shaped Nano-Apertures", SPRC Annual Meeting, Stanford University, Stanford, California, September, 2003.
234. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink., "Direct-write e-beam domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", *Stanford Photonics Research Center Annual Meeting*, September 2003.
235. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink., "Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", *Bragg Gratings Photosensitivity and Poling in Glass Waveguides, OSA topical Meeting*, Monterey, CA, September 2003.
236. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink., "Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", *Laser Science XIX, OSA Annual Meeting*, Tucson, AZ, October 2003.
237. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink., "Submicron Ferroelectric Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", *Materials Research Society Fall Meeting*, Boston, MA, December 2003.
238. J. W. Son, S. Orlov, W. Phillips, and L. Hesselink., "Parametric studies on Suppressing Secondary Phases in Lithium Niobate Thin Films deposited by Pulsed Laser Deposition", *Materials Research Society Fall Meeting*, Boston, MA, December 2003.
239. Shi, Xiaolei, Hesselink, Lambertus; Thorton, Robert L., "Ultrahigh light transmission through a C-shaped nanoaperture," *Optics Letters*, August 1, 2003, v. 28, no. 15, p. 1320-1322.
240. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink., "Submicron Ferroelectric Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", *Ferroelectric Thin Films XII*, 2003 MRS Fall Meeting Proceeding Vol. 784, C 10.8., 2004.
241. J. W. Son, S. Orlov, W. Phillips, and L. Hesselink., "Parametric studies on Suppressing Secondary Phases in Lithium Niobate Thin Films deposited by Pulsed Laser Deposition", *Ferroelectric Thin Films XII*, 2003 MRS Fall Meeting Proceeding Vol. 784, C 11.24., 2004.
242. M. Inoue and L. Hesselink, "Hologram Optical Recording," Chapter 7, Optical recording technology and materials of the next generation, CMC publishing (2004), in Japanese.
243. Ren, Jun; Orlov, Sergei S.; Hesselink, L.; Howard, Helen; Conneely, Alan, "Nanosecond laser silicon micromachining," *Proceedings of SPIE*, 2004, v. 5339, p. 382-393, Photon Processing in Microelectronics and Photonics III, January 26-29, 2004, San Jose, CA
244. J.A. Matteo, D.P. Fromm, Y. Yuen, P.J. Schuck, W.E. Moerner, L. Hesselink, "Spectral Analysis of Strongly Enhanced Visible Light Transmission Through Single C-Shaped Nano-Apertures", SPRC Nanophotonics Meeting, Stanford University, Stanford, California, January, 2004.
245. M. Dubois, B. L. Lawrence, P. Tian, E. P. Boden, K. P. Chan, M. Nielsen and L. Hesselink, "Characterization of a Preliminary Narrow-Band Absorption Material for Holographic Data Storage," April 18-21, 2004, Optical Data Storage 2004, Monterey, CA.
246. J.A. Matteo, D.P. Fromm, Y. Yuen, P.J. Schuck, W.E. Moerner, L. Hesselink, "Spectral Analysis of Strongly Enhanced Visible Light Transmission Through Single C-Shaped Nano-Apertures", Conference on Lasers and Electro-Optics, San Francisco, California, May 2004.

247. Yin, X. B.; Hesselink, L.; Liu, Z.; W.; Fang, N.; Zhang, X., "Large positive and negative lateral optical beam displacements due to surface plasmon resonance," *Applied Physics Letters*, July 19, 2004, v. 85, no. 3, p. 372-374.
248. Shi, Xiaolei; Hesselink, L.; "Design of a C aperture to achieve $\{\lambda\}/10$ resolution and resonant transmission," *Journal of the Optical Society of America B: Optical Physics*, July 2004; v. 21, no. 7, p. 1305-1317.
249. J. A. Matteo, R. Zia, D.P. Fromm, M.L. Brongersma, W.E. Moerner, L. Hesselink, "Design, Characterization, and Functionalization of C-Shaped Nanoaperture Probes", NFO-8, Seoul, South Korea, September, 2004..
250. J. A. Matteo, L. Hesselink, "Fractal Extensions of Near-Field Aperture Shapes for Enhanced Transmission and Resolution", The 8th International Conference on Near-field Nano Optics & Related Techniques, Seoul, South Korea, September, 2004.
251. R. Zia, J.A. Matteo, L. Hesselink, M.L. Brongersma, "Calibration by Field Detection Dichotomy for Apertured-Cantilever Probes in PSTM and Collection-Mode NSOM", NFO-8, Seoul, South Korea, September, 2004.
252. R. Zia, M. Selker, J.A. Matteo, L. Hesselink, M.L. Brongersma, "Mapping the Confinement of Plasmonic Waveguides and Metallic Nano-Apertures", NFO-8, Seoul, South Korea, September, 2004.
253. J.A. Matteo, L. Hesselink, "Fractal Extensions of Near-Field Aperture Shapes for Enhanced Transmission and Resolution". (Accepted *Optics Express*, 12/04).
254. J.A. Matteo, D.P. Fromm, Y. Yuen, P.J. Schuck, W.E. Moerner, L. Hesselink, "Spectral Analysis of Strongly Enhanced Visible Light Transmission Through Single C-Shaped Nano-Apertures", *Applied Physics Letters*, v.85.4, 2004.
255. J.A. Matteo, D.P. Fromm, Y. Yuen, P.J. Schuck, W.E. Moerner, L. Hesselink, "Spectral Analysis of Strongly Enhanced Visible Light Transmission Through Single C-Shaped Nano-Apertures", *Virtual Journal of Nanoscale Science & Technology*, August, 2004.
256. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Direct-write E-beam Periodically Poled ~400nm Domains in Lithium Niobate Thin Films grown by Liquid Phase Epitaxy", *Ukrainian Journal of Physics*, 49(4), p.382-388, 2004.
257. Orlov, S.S.; Phillips, W.; Bjornson, E.; Takashima, Y.; Sundaram, P.; Hesselink, L.; Okas, R.; Kwan, D.; Snyder, R., "High-transfer rate high-capacity holographic disk data-storage system," *Applied Optics*; September 1, 2004, vol 43, no. 25, p. 4902-14.
258. Liying Sun, Rajesh K. Batra, Xiaolei Shi, and Lambertus Hesselink, "Topology Visualization of the Optical Power Flow Through a Novel C-Shaped Nano-Aperture," *IEEE Visualization 2004*, Austin, TX Oct 10-15, 2004.
259. Ren, Jun; Kelly, M.; Hesselink, L., "Laser ablation of silicon in water with nanosecond and femtosecond pulses," *Optics Letters*, July 1, 2005; v. 30, no. 23, p. 1740-1742.
260. "Rear surface spallation on single-crystal silicon in nanosecond laser micromachining," Jun Ren, Sergei S. Orlov, and Lambertus Hesselink, *J. Appl. Phys.*, Vol.97, 104304 (2005)
261. "Laser ablation of silicon in water with nanosecond and femtosecond pulses," Jun Ren, Michael Kelly, and Lambertus Hesselink, *Optics Letters*, Vol. 30, no. 13, (2005) (Paper selected in the July 2005 issue of *Virtual Journal of Ultrafast Science*).
262. "Realtime study of plume ejection dynamics in silicon laser ablation under 5ns pulses," Jun Ren, Xiaobo Yin, Sergei S. Orlov, and Lambertus Hesselink, (accepted by *J. Appl. Phys. Rapid Communications*, under further review consideration for *Appl. Phys. Lett.*)

263. J. W. Son, Y. Yuen, S. Orlov, and L. Hesselink, "Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam Techniques", *J. Crystal Growth*, 281 (2-4), 492-500, 2005.
264. J. W. Son, Y. Yuen, S. Orlov, L. Galambos, and L. Hesselink, "Direct-Write e-Beam Sub-micron Domain Engineering in Liquid Phase Epitaxy (LPE) LiNbO₃ thin films and Single Crystal LiNbO₃", *J. Crystal Growth*, 280, 135-144, 2005.
265. Spectral analysis of strongly enhanced visible light transmission through single C-shaped nanoapertures Matteo, JA; Fromm, DP; Yuen, Y; Schuck, PJ; Moerner, WE; Hesselink, L Source: Applied Physics Letters; 26 July 2004; vol.85, no.4, p.648-50
266. Holographic data storage systems, Hesselink, L; Orlov, SS; Bashaw, MC, Proceedings of the IEEE; Aug. 2004; vol.92, no.8, p.1231-80
267. Direct-write e-beam sub-micron domain engineering in liquid phase (LPE) LiNbO₃ thin films and single crystal LiNbO₃ Son, J; Yuen, Y; Orlov, SS; Galambos, L; Hesselink, L, Journal of Crystal Growth; 15 June 2005; vol.280, no.1-2, p.135-44
268. High-transfer-rate high-capacity holographic disk data-storage system, Orlov, SS; Phillips, W; Bjornson, E; Takashima, Y; Sundaram, P; Hesselink, L; Okas, R; Kwan, D; Snyder, R, Applied Optics; 1 Sept. 2004; vol.43, no.25, p.4902-14
269. Large positive and negative lateral optical beam displacements due to surface plasmon resonance, Yin, XB; Hesselink, L; Liu, ZW; Fang, N; Zhang, X, Applied Physics Letters; Jul 19 2004; v.85, no.3, p.372-374
270. Design of a C aperture to achieve $\{\lambda\}/10$ resolution and resonant transmission, Shi, XL; Hesselink, L, Journal of the Optical Society of America B: Optical Physics; July 2004; v.21, no.7, p.1305-1317
271. Microholographic multilayer optical disk data storage, McLeod, RR; Daiber, AJ; McDonald, ME; Robertson, TL; Slagle, T; Sochava, SL; Hesselink, L, Applied Optics; Jun 1 2005; v.44, no.16, p.3197-3207.
272. Electromagnetic phenomena in advanced photomasks, Schellenberg, FM; Adam, K; Matteo, J; Hesselink, L., Journal of Vacuum Science and Technology B: Microelectronics and Nanometer Structures; November/December 2005; v.23, no.6, p.3106-3115
273. Fractal extensions of near-field aperture shapes for enhanced transmission and resolution, Matteo, JA; Hesselink, L, Optics Express; January 2005; v.13, no.2, p.636-647.
274. Highly sensitive surface plasmon resonance chemical sensor based on Goos-Hanchen effects, Yin, Xiaobo; Hesselink, Lambertus, SPIE-The International Society for Optical Engineering; Aug 16-17, 2006, v. 6324, San Diego, CA.
275. En-squared power based optical design for page-based holographic storage systems, Takashima, Yuzuru; Hesselink, Lambertus, Proceedings of SPIE-The International Society for Optical Engineering, June 4-8, 2006, Vancouver, BC, Canada
276. A C-shaped nanoaperture Vertical-Cavity Surface-Emitting Laser for high-density near-field optical data storage, Rao, Zhilong; Matteo, Joseph A.; Hesselink, Lambertus; Harris, James S., Proceedings of SPIE-The International Society for Optical Engineering, Jan 25-26, 2006, San Jose, CA.
277. Temporal and spectral nonspecularities in reflection at surface plasmon resonance, Xiaobo Yin; Hesselink, L.; Chin, H.; Miller DAB, Applied Physics Letters, 24 July 2006; vol. 89, no. 4, p. 41102-1-3.
278. Goos-Hanchen shift surface plasmon resonance sensor, Yin, XB; Hesselink, L.; Applied Physics Letters, December 25, 2006, v. 89, no. 26, p. 261108.

279. "Realtime study of plume ejection dynamics in silicon laser ablation under 5ns pulses," Jun Ren, Xiaobo Yin, Sergei S. Orlov, and Lambertus Hesselink, *Applied Physics Letters*, February 6, 2006, v. 88, no. 6, p. 061111.
280. Polarization effects in plasmonic masks, Schellenberg, F; Adam, K; Sun, LY; Matteo, J; Hesselink, L, *Microelectronic Engineering*; April-Sept. 2006; vol.83, no.4-9, p.919-22
281. High-intensity C-shaped nanoaperture vertical-cavity surface-emitting laser with controlled polarization Rao, ZL; Matteo, JA; Hesselink, L; Harris, JS, *Applied Physics Letters*; 7 May 2007; vol.90, no.19, p.191110-1-3
282. Low-loss subwavelength metal C-aperture waveguide Sun, LY; Hesselink, L, *Optics Letters*; Dec 15 2006; v.31, no.24, p.3606-3608
283. Pulsed laser deposition of single phase LiNbO₃ thin film waveguides Ji-Won Son; Orlov, SS; Phillips, B.; Hesselink, L., *Journal of Electroceramics*; Dec. 2006; vol.17, no.2-4, p.591-5
284. Media tilt tolerance of page-based and bit-based and plographic storage systems. Takashima, Y.; Hesselink, L., 2006 Optical Data Storage Topical Meeting, 23-26 April 2006, Montreal, Que., Canada; p.221-3 Conference: 2006 Optical Data Storage Topical Meeting, 23-26 April 2006, Montreal, Que., Canada
285. Consequences of plasmonic effects in photomasks, Schellenberg, FM; Adam, K.; Matteo, J.; Hesselink, L., *Proceedings of SPIE - The International Society for Optical Engineering*; 2006; v.6281
286. High transmission through ridge nano-apertures on vertical-cavity surface-emitting lasers Rao, Z; Hesselink, L; Harris, JS, *Optics Express*; Aug 6 2007; v.15, no.16, p.10427-10438
287. High-intensity bowtie-shaped nano-aperture vertical-cavity surface-emitting laser for near-field optics Rao, ZL; Hesselink, L; Harris, JS, *OPTICS LETTERS*; JUL 15 2007; v.32, no.14, p.1995-1997
288. Pulsed-interleaved excitation FRET measurements on single duplex DNA molecules inside C-shaped nanoapertures Fore, S; Yuen, Y; Hesselink, L; Huser, T, *Nano Letters*; June 2007; v.7, no.6, p.1749-1756
289. Design of a subwavelength bent C-aperture waveguide", Hansen, P ; Hesselink, L ; Leen, B *Optics Letters*; 15, 2007; vol.32, no.12, p.1737-9
290. J. B. Leen, P. Hansen, Y. Cheng, and L. Hesselink, "Improved focused ion beam fabrication of near-field apertures using a silicon nitride membrane," *Opt. Lett.* 33, 2827-2829 (2008)
291. Y. Takashima and L. Hesselink, "Designs and Tolerances of Numerical Aperture 0.8 Objective Lenses for Page-Based Holographic Data Storage Systems," *Japanese Journal of Applied Physics* 48, 03A004 (2009).
292. J. B. Leen, P. Hansen, Y. Cheng, A. Gibby, and L. Hesselink, "Near-field optical data storage using C-apertures," *Appl. Phys. Lett.* 97, 073111 (2010).
293. B. Lee, I. Lee, S. Kim, D. Oh, and L. Hesselink, "Review on subwavelength confinement of light with plasmonics," *Journal of Modern Optics* 57, 1479-1497 (2010).
294. A. Koc, H. M. Ozaktas, and L. Hesselink, "Fast and accurate computation of two-dimensional non-separable quadratic-phase integrals," *Journal of the Optical Society of America A-Optics Image Science and Vision* 27, 1288-1302 (2010).
295. A. Koc, H. M. Ozaktas, and L. Hesselink, "Fast and accurate algorithm for the computation of complex linear canonical transforms," *Journal of the Optical Society of America A-Optics Image Science and Vision* 27, 1896-1908 (2010).
296. E. Cho, S. Kang, J. B. Leen, S. Suh, J. Sohn, C. Moon, N. Park, L. Hesselink, and Y. Park, "Polymeric light delivery via a C-shaped metallic aperture," *Journal of the Optical Society of America B-Optical Physics* 27, 1309-1316 (2010).

297. X. Shi, V. Ostroverkhov, B. Lawrence, E. Boden, Z. Ren, Y. Takashima, F. Ross, "Micro-Holographic Data Storage: Materials and Systems", *Review of Laser Engineering*, 38: 349-355, (2010).
298. Yao-Te Cheng et al., Ultra-high resolution resonant C-shaped aperture nano-tip, *Optics Express*, vol 19, no 6, p 5077-5085, (2010).
299. P. Hansen, Y. Zheng, E. Perederey, and L. Hesselink, "Adjoint FDTD for Nanophotonic Device Optimization," in *Joint International Symposium on Optical Memory and Optical Data Storage*, OSA Technical Digest (CD) (Optical Society of America, 2011)
300. Juan R. Maldonado, Piero Pianetta, David H. Dowell, Jeff Corbett, Sam Park, John Schmerge, Ann Trautwein, and William Clay, "Experimental verification of the 3-step model of photoemission for energy spread and emittance measurements of copper and CsBr-coated copper photocathodes suitable for free electron laser applications", *Appl. Phys. Lett.* 101, 231103 (2012)
301. William A. Clay, Juan R. Maldonado, Piero Pianetta, Jeremy E. P. Dahl, Robert M. K. Carlson, Peter R. Schreiner, Andrey A. Fokin, Boryslav A. Tkachenko, Nicholas A. Melosh, and Zhi-Xun Shen, "Photocathode device using diamondoid and cesium bromide films" *Appl. Phys. Lett.* 101, 241605 (2012)
302. Piper, J. R., Hansen, P. C., Hesselink, L., "Fundamentals of excitation and resonance of a Near-Field Transducer in the presence of a conductive magnetic recording medium", *PHYSICS AND SIMULATION OF OPTOELECTRONIC DEVICES XX* 8255 (2012)
303. Hansen, P., Zheng, Y., Ryan, J., Hesselink, L., "Nano-Optical Conveyor Belt, Part I: Theory", *Nano Letters*, 14 (6): 2965-2970 (2014)
304. Zheng, Y., Ryan, J., Hansen, P., Cheng, Y., Lu, T., Hesselink, L., "Nano-Optical Conveyor Belt, Part II: Demonstration of Handoff Between Near-Field Optical Traps", *Nano Letters*, 14 (6): 2971-2976 (2014)
305. Maldonado, J. R.; Cheng, Y. T.; Pianetta, P.; Pease, FW; Hesselink, L., "A cesium bromide photocathode excited by 405 nm radiation" *APPLIED PHYSICS LETTERS* Volume: 105 Issue: 2 Article Number: 021108 (2014)
306. Yuzuru Takashima, Jihun Kim, Yao-Te Cheng, Max Yuen, and Lambertus Hesselink, "Design and Analysis of an X-ray Differential Phase Contrast Imaging System with Grating-less X-ray Source and Detectors", *OSA Technical Digest* (online) paper IM2B.2 (2014)
307. Vecchione, Theodore; Maldonado, Juan R.; Gierman, Stephen; Corbett, J; Hartmann, N; Pianetta, PA; Hesselink, L; Schmerge, JF, "High gradient rf gun studies of CsBr photocathodes", *PHYSICAL REVIEW SPECIAL TOPICS-ACCELERATORS AND BEAMS* Volume: 18 Issue: 4 Article Number: 040701 (2015)
308. Scalo, Carlo; Lele, Sanjiva K.; Hesselink, Lambertus, "Linear and nonlinear modelling of a theoretical travelling-wave thermoacoustic heat engine", *JOURNAL OF FLUID MECHANICS* Volume: 766, 368-404 (2015)
309. Hansen, P., Hesselink, L., "Accurate adjoint design sensitivities for nano metal optics", *Optics express*, 23, 23899-923 (2015)
310. Mohammad Asif Zaman, Paul C. Hansen, Lars T. Neustock, Punag Padhy, and Lambertus Hesselink, "Adjoint method for estimating Jiles-Atherton hysteresis model parameters," *Journal of Applied Physics* 120, 093903 (2016)

311.Lin, Jeffrey, Carlo Scalo, and Lambertus Hesselink. "High-Fidelity Simulation of a Standing-Wave Thermoacoustic-piezoelectric Engine." *Journal of Fluid Mechanics* 808 19–60 (December 2016).

LECTURES AND NOTES, WORKSHOPS AND TUTORIALS (PARTIAL LIST)

1. Hesselink, L. Modern Optical Methods in Engineering Research. Notes for workshop conducted at Stanford University, 143 pages, California Institute of Technology, July 26, 1978.
2. Hesselink, L. Modern Optics. Lecture notes, 250 pages, California Institute of Technology, 1979.
3. Hesselink, L. Digital image processing in fluid mechanics. Lecture notes for short course at Von Karman Institute, Brussels, Belgium, 130 pages, March 1984 and 1986.
4. Hesselink, L.; Wilde, J.; McRuer, R. Nonlinear photorefractive effects and their application in dynamic optical interconnects and image processing. Lecture at 13th Course of the International School of Quantum Electronics, 30 pages, Erice, Italy, May 1988.
5. Hesselink, L. Holographic vorticity measurements in fluids. Invited seminar, 20 pages, Princeton University, NJ, April 1989.
6. Hesselink, L. Optical data storage. Invited lecture, 1 page, Rochester, NY, May 1989.
7. Hesselink, L. Analysis and display of 3-D flow data sets. Invited seminar, 1 page, University of Arizona, Tucson, AZ, September 28, 1989.
8. Hesselink, L. Three-dimensional display and evaluation of scientific data. Invited lecture, 1 page, Department of Physics and Astronomy Public Lecture Series: "What Physicists Do", Sonoma State University, CA, February 5, 1990.
9. Hesselink, L. Display and evaluation of 3-D fluid flow data sets. Invited talk, 1 page, Supercomputer Visiting Scientist Program, Rutgers University, NY, March 21—22, 1990.
10. Hesselink, L., "Holographic Information Storage," tutorial CLEO/IQEC '94, Anaheim, CA May 8-12, 1994.
11. Hesselink, Lambertus, "Holographic Data Storage." (lecture) NASA-Goddard, Washington, DC, October 1994.
12. Hesselink, Lambertus, "Storage & Retrieval of Digital Data in a Volume Holographic Medium," Varian, Palo Alto, CA (lecture), January 1995.
13. Hesselink, Lambertus, CLEO/QELS '95, Conference, Baltimore Convention Center, (chair-tutorial) Baltimore, MD, May 1995.
14. Hesselink, Lambertus, ICASE, Visualizing Time-Varying Data (workshop), Williamsburg, VA , September 1995.
15. Hesselink, Lambertus, IEEE Computer Society, IEEE Visualization '95 (tutorial), Atlanta, GA October 1995.
16. Hesselink, Lambertus, IEEE Leos, Lasers & Electro-Optics Society, Invited chairperson, "Optical Data Storage Systems," San Francisco, CA, November 1995.
17. Hesselink, Lambertus, IS&T SPIE, Symposium on Electronic Imaging & Technology-Photonics West '96, invited organizing program committee, San Jose, Ca, January 1996.

18. Hesselink, Lambertus, OSA Topical Meet; Session: Holography, Program Committee Chair, Boston, MA, April 1996.
19. Hesselink, Lambertus, CLEO/QELS, Invited Short Course: Holographic Data Storage (Course #106), Anaheim, CA, June 1996.
20. Hesselink, Lambertus, 3rd ECAP-Polar Dielectrics: J. Stephen Institute, Invited Plenary Lecture: Photorefractive Optical Memories," Bled, Slovenia, August 1996.
21. Hesselink, Lambertus, OSA Annual Meeting, Presiding Chair & Organizer, ILS-SCII Optics & Imaging Center: Symposium on Large Scale Digital Holographic Memories, "Materials and Systems Issues for Digital Holographic Data Storage," Rochester, NY, October 1996.
22. Hesselink, Lambertus, IEEE Visualization '96, Program Committee, "Holographic Storage," San Francisco, CA, October 1996.
23. Hesselink, Lambertus, IS&T SPIE, Symposium on Electronic Imaging & Technology-Photonics West '97, Program Committee Chair, San Jose, CA, February 1997.
24. Hesselink, L., Short Course: Holographic Data Storage, CLEO/QELS, Anaheim, CA June, 1996.
25. Hesselink, L., Short Course: Holographic Data Storage, CLEO/QELS, Baltimore, CA May, 1997
26. Hesselink, L., Short Course: Holographic Data Storage, CLEO/QELS, Anaheim, CA June, 1998
27. Hesselink, L., Short Course: Holographic Data Storage, CLEO/QELS, baltimore, CA May, 1999
28. Short Course, invited OSA Annual Meet, "Holographic Storage," Santa Clara, CA, September 26, 1999.
29. CLEO QELS 2000 Conference on Lasers and Electro-Optics, Invited Short Course, "Holographic Data Storage,". San Francisco, Moscone Center, May 8, 2000.
30. Hesselink, L., Short Course: Holographic Data Storage, OSA ODS 2000, Whistler, CA May, 2000
31. Hesselink, L., Short Course: Holographic Data Storage, CLEO/QELS, Vancouver, CA , 2002
32. Hesselink, L., Short Course: Holographic Data Storage, ODS, Montreal, 2005
33. Hesselink, L., Short Course: Advanced Holographic Data Storage, ODS, Taiwan, 2006
34. Hesselink, L Short Course: basic Principles of Holographic Data Storage, ODS, Portland Or, 2007

PEER REVIEWED PROCEEDINGS OF TECHNICAL MEETINGS

1. Hesselink, L. An experimental investigation of the propagation of weak shock waves in a random medium. Proceedings 11th International Symposium on Shock Tubes and Waves, Seattle, WA: U. of Washington, pp. 82—90, July 1977.
2. Hesselink, L.; George, N. Laser propagation through a turbulent gaseous medium. Meteorological Optics Meeting, 8 pages, Keystone, Colorado, August 28—29, 1978.

3. Sturtevant, B.; Hesselink, L.; Haas, J-F. Propagation of shock waves in random media. Proceedings 12th International Symposium on Shock Tubes and Waves, Jerusalem, Israel: The Magnes Press, pp. 359—365, July 16—19, 1979.
4. Sturtevant, B.; Hesselink, L.; White, B.S.; Kulkarny; Catherasoo Propagation of shock waves through non-uniform and random media. Proceedings 13th International Symposium on Shock Tubes and Waves, 5 pages, Niagara Falls, NY: State University of New York Press, July 1981.
5. Johnson, K.M.; Hesselink, L.; Goodman, J.W. Multiple exposure holographic display of C.T. medical data. Proc. Society of Photo-Optical Instrumentation Engineers (SPIE), Vol. 367, pp. 149—154, San Diego, CA, August 1982.
6. Hesselink, L.; Johnson, K.M.; Perlmutter, R.J. Holographic display devices. Invited lecture, Proc. SPIE, Vol. 402, pp. 80—87, April 1983.
7. Hesselink, L.; Pender, J.; Jaffey, S.; Dutta, K. Quantitative three-dimensional flow visualization. Proc. Third Intl. Symp. Flow Vis., pp. 295—300, Ann Arbor, MI: Hemisphere Publishing Corp., September 1983.
8. Hesselink, L.; Snyder, R. Three-dimensional tomographic reconstruction of the flow around a revolving helicopter rotorblade; a numerical simulation. Proc. Third Intl. Symp. Flow Vis., pp. 213—220, Ann Arbor, MI: Hemisphere Publishing Corp., September 1983.
9. Hesselink, L.; Jaffey, S.M.; Dutta, K. Digital reconstruction methods for 3-D visualization. Proc. SPIE, Vol. 507, p. 155—163, San Diego, CA, August 1984.
10. Hesselink, L. Non-holographic three-dimensional display devices. Invited lecture, Proceedings SPIE, Vol. 532, p. 14 (15 pages), Los Angeles, CA, January 1985.
11. Vachss, F.; Hesselink, L. Electrogyratory and electro-optic coupling in BSO and BGO. Proc. SPIE, Vol. 613, p. 178 (9 pages), Los Angeles, CA, January 1986.
12. Ochoa, E.; Hesselink, L.; Goodman, J.W. Real-time defect enhancement using inversion properties of photorefractive BSO. Proc. SPIE, Vol. 613-33, p. 194 (7 pages), Los Angeles, CA, January 1986.
13. Hesselink, L. Optical interconnects with reflection holographic optical elements. Invited paper, Topical Meeting on Holography, Optical Society of America (OSA), 4 pages, Honolulu, HI, April 1986.
14. Hesselink, L. Three-dimensional reconstruction of fluid flow visualization images. Proc. 4th Intl. Meeting on Flow Visualization, 5 pages, Paris, France, 1986.
15. Wilde, J.; Hesselink, L. Dynamic holographic interconnections using photorefractive crystals. IProc. SPIE, Vol. 752, p. 200-8, Los Angeles, CA, January 1987.
16. Hesselink, L.; Helman, J. Evaluation of flow field topology from numerical data. Invited paper, AIAA # 87-1181-CP, 7 pages, June 1987.
17. Hesselink, L.; Roberts, L.; Kroo, I.; Wood, N.J. The control of vortical flows over a delta wing. AFOSR Workshop on Unsteady Separated Flows, 6 pages, Colorado Springs, CO, July 1987.
18. Collicott, S.; Hesselink, L. Photorefractive recording of speckle for real-time velocimetry and metrology. Proceedings SPIE #814105, 6 pages, San Diego, CA, August 1987.
19. Collicott, S.; Hesselink, L. Real time speckle velocimetry with recording in photorefractive crystals. AIAA paper # 87-1376, pp. 1—7, Hawaii, 1987.
20. Agüí, J.; Hesselink, L. Volume holography in flowing liquids. OSA Annual Meeting, 12 pages, Rochester, NY, October 18—23, 1987.

21. Agüí, J.; Hesselink, L. Holographical strain measurement in fluids. APS 40th Annual Meeting, 5 pages, The University of Oregon, Eugene, OR, November 22—24, 1987.
22. Hesselink, L. High speed optical tomographic data acquisition systems for combustion research. Fifth Symposium on Energy Sciences, 5 pages, 1987.
23. Wilde, J.; McRuer, R.; Hesselink, L.; Goodman, J.W. Dynamic holographic interconnections using photorefractive crystals. SPIE Proc., Vol. 752, pp. 200—208, Los Angeles, CA, January 1987.
24. McRuer, R.; Hesselink, L. Two wavelength photorefractive dynamic optical interconnect. Proc. SPIE, Vol. 881, p. 192-8, Los Angeles, CA, January 1988
25. Hesselink, L.; Snyder, R. Instantaneous three-dimensional optical tomography for flow visualization. Proceedings of ICALEO 88 Conference, 10 pages, Santa Clara, CA, October 1988.
26. Hesselink, L.; Helman, J.; Wu, K. Visualization and interpretation of three-dimensional scientific data sets. Proceedings of ICALEO 88 Conference, 9 pages, Santa Clara, CA, October 1988.
27. Redfield, S.; Hesselink, L. Data storage in photorefractives revisited. Proceedings of Intl. Commission on Optics (I.C.O.) International Topical Meeting on Optical Computing, pp. 35—45, Toulon, France, August 1988.
28. Hesselink, L. Advance diagnostics for flow understanding and flow visualization. Presented in "Plenary Session 4: Invited Lectures" at APS 41st Annual Meeting, Bulletin of the APS, Series II, Vol. 33, No. 10, p. 2267 (1 page), Buffalo, NY, November 1988.
29. Agüí, J. ; Hesselink, L. Direct holographical measurements of velocity gradients in boundary layers. Presented in "Experimental Techniques IV" at APS 41st Annual Meeting, Bulletin of the APS, Series II, Vol. 33, No. 10, p. 2290 (1 page), Buffalo, NY, November 1988.
30. Snyder, R.; Hesselink, L. Three-dimensional optical tomographic measurements of mixing fluids. Presented at SPIE OE/LASE 89 Conference, SPIE Proc., Vol. 1083, p. 24 (8 pages), Los Angeles, CA, January 1989.
31. Helman, J.; Hesselink, L. Automated analysis of fluid flow topology. Presented in "Three-Dimensional Visualization and Display Technologies" at SPIE OE/LASE 89 Conference, SPIE Proc., Vol. 1083, p. 23 (9 pages), Los Angeles, CA, January 1989.
32. Yoda, M.; Hesselink, L. Three-dimensional measurement, display and interpretation of fluid flow datasets. Presented at SPIE OE/LASE 89 Conference, SPIE Proc., Vol. 1083, p. 14 (6 pages), Los Angeles, CA, January 1989.
33. Hesselink, L.; Agüí, J. Three dimensional display of scientific data. Presented in Practical Holography III at SPIE OE/LASE 89 Conference, SPIE Proc., Vol. 1051, p. 25 (7 pages), Los Angeles, CA, January 1989.
34. Wilde, J.; Hesselink, L. Implementation of dynamic Hopfield-like networks using photorefractive crystals. Contribution to technical digest of Optical Computing 89 Conference, 4 pages, Salt Lake City, UT, February—March 1989.
35. Pender, J.; Hesselink, L. Distributed feedback oscillator using phase conjugation. CLEO Conference, 4 pages, Baltimore, MD, March 1989.
36. Helman, J.; Hesselink, L. Analysis and visualization of flow topology in numerical data sets. In Topological Fluid Mechanics, Proc. of the IUTAM Symposium, pp. 361—371, Cambridge, England, August 13—18, 1989.
37. Hesselink, L. Recent developments in photorefractives for optical processing. Gordon Research Conference on "Holography and Optical Information Processing", 1 page, Plymouth State College, NH, August 6—11, 1989.

38. Hesselink, L. Vorticity measurements in photochromic fluids. Presented in "Laser Diagnostics and Metrology" at APS Fifth Interdisciplinary Laser Science Conference, Bulletin of the APS, Series II, Vol. 34, No. 7, 1 page, Palo Alto, CA, August 27—31, 1989.
39. Hesselink, L. Progress in materials and configurations for photorefractive optical storage. Presented in "Optical Memory Storage II" at IEEE Lasers and Electro-Optics Society Annual Meeting, Conference Proc., IEEE Catalog No. 89CH2641-9, pp. 441—444, Orlando, FL, October 17—20, 1989.
40. Yoda, M.; Hesselink, L. Three-dimensional visualization of flow around a delta wing with leading edge blowing. APS 42nd Annual Meeting, 1 Page, Palo Alto, CA, November 1989.
41. Helman, J.; Hesselink, L. Analysis and visualization of flow topology in separated flows. APS 42nd Annual Meeting, 6 pages, Palo Alto, CA, November 1989.
42. Agüí, J.; Hesselink, L. Holographic measurement of velocity gradients in fluid flows sensitized with photochromic dyes. Invited paper, Tenth Australasian Fluid Mechanics Conference, 15 pages, Melbourne, Australia, December 1989.
43. Hesselink, L. Photorefractive approaches to optical interconnects. Presented in Digital Optical Computing at SPIE OE/LASE 90 Conference, SPIE Critical Reviews, Vol. CR 35, Manuscript #1214-02, 13 pages, Los Angeles, CA, January 1990.
44. Aronson, L.; Hesselink, L. Photorefractive waveguide grating switches for optical interconnects. Presented in "Practical Holography IV" at SPIE OE/LASE 90 Conference, SPIE Proc., Vol. 1212, 11 pages, Los Angeles, CA, January 1990.
45. Hesselink, L. Holographic data processing and storage. Presented in "Physics of Optical Storage" at APS Sixth Interdisciplinary Laser Science Conference, Minneapolis, MN, September 18—22, 1990.
46. Helman, J.; Hesselink, L. Surface representations of two- and three-dimensional fluid flow topology. Submitted at Scientific Visualization Conference, Palo Alto, CA, 17 pages, June 11-13, 1990; published in Proceedings of the First IEEE Visualization Conference, San Francisco, pp.6-13, October 23-24, 1990.
47. Ning, P.; Hesselink, L. Adaptive isosurface generation in a distortion-rate framework, Submitted at SPIE Conference, San Jose, CA, 11 pages, published Proceedings SPIE vol. 1459-02, February 1991.
48. Wilde, J.P.; Hesselink, L.; Electro-Optic Effects and Domain Reversal in $\text{Sr}_{0.61}\text{Ba}_{0.39}\text{Nb}_2\text{O}_6$. Presented at OSA Topical Meeting on Photorefractive Materials Effects and Devices, 5 pages, Beverley, Massachusetts, July 29-31, 1991.
49. Hesselink, L.; Helman, J.L.; Ning, P.; Quantitative Image Processing in Fluid Mechanics. Presented as Keynote address at the Second World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics; Dubrovnik, Yugoslavia, June 23-28, 1991, 16 pages.
50. Hesselink, L.; Helman, J.L.; Ning, P.; Visualization Methods for Fluid Flow Datasets. Presented at the Euromech Colloquium 279 "Image Analysis for Measuring Technology in Flows", Delft University of Technology, July 1-5, 1991.
51. Hesselink, L.; Ning, P.; Delmarcelle, T.; Volumetric visualization techniques for fluid mechanics, Proceedings on International Seminar on Imaging in Transport Processes, Athens, Greece, May 1992 (Published as "Imaging in Transport Processes", Samuel Sideman and Kunio Hijikata, eds., Begell House Inc. Publishers, March 1993).
52. Ning, P.; Hesselink, L.; Octree Pruning for Variable-Resolution Isosurfaces; To be presented at Computer Graphics International 1992, Tokyo, Japan, June 22-26, 1992.
53. Hesselink, L.; Glucose sensor based on the LUQUEN principle. Presented at the EUROSENSORS V Conference Vol. B7, no. 1-3, p. 363-6. Rome, Italy, September 30-October 2, 1992.

54. Hesselink, L.; Wilde, J.; Recent Advances in Holographic Data Storage in SBN. Invited lecture, 6 pages, presented at the Soviet Chinese Joint Seminar Holography and Optical Information Processing; Frunze, Kirghiztan, USSR, Sept. 21-15, 1991.
55. Hesselink, L.; Optical Signal Processing, presented at the Colloque International sur la Correlation, Toulouse, France, November 26-28, 1991, 17 pages.
56. Helman, J.; Hesselink, L.; Analysis and Representation of Complex Structures in Separated Flows. SPIE Proceedings, Vol. 1459, from *Extracting Meaning from Complex Data*, Feb. 24, 1991.
57. Ning, P.; Hesselink, L.; Fast volume rendering of compressed data, Proceedings-IEEE Visualization '93, Pages 11-18, 1993.
58. Peercy, Mark S.; Hesselink, L.; Dichromatic Color Representations for Complex Display Systems, to appear in Conference Proceedings of Visualization '93, October 1993.
59. Heanue, J. F.; Bashaw, M. C.; and Hesselink, L.; Storage of Digital Image and Video Data in a Photorefractive Based Holographic Data Storage System, CLEO/IQEC '94, Anaheim, CA, May 1994.
60. Daiber, A. J. and Hesselink, L.; High Resolution, High Speed Optical Tomography Facility, CLEO/IQEC, Anaheim, CA, May 1994.
61. Downing, E.A. and Hesselink, L.; Solid-state three-dimensional computer display, CLEO/IQEC '94, Anaheim, CA, May 1994.
62. Wilde, J.P.; De Vré, R.; Jeganathan, M. and Hesselink, L., Electric field control of image-bearing volume holograms stored in photorefractive media, CLEO/IQEC '94, Anaheim, CA, May 1994.
63. Delmarcelle, Thierry; Hesselink, Lambertus, The Topology of Symmetric, Second-Order Tensor Fields, Proceedings IEEE Visualization '94, Tysons Corner, VA, October 17-21, 1994.
64. Jeganathan, M. and Hesselink, L., "Combined effects of thermal fixing and beam coupling in photorefractive media," Topical Meeting on Photorefractive Materials, Effects, and Devices, Kiev, Ukraine, August, 1993.
65. Daiber, A. J.; Hesselink, L.; High Resolution Time-Resolved Optical Absorption Tomography, presented at the 7th International Symposium on Applications for Laser Tech to Fluid Mechanics, Lisbon, Portugal, July 11-14, 1994.
66. Smith, S. L.; Hesselink, L.; Transport modeling of multiple quantum well photorefractive devices, 1993 Annual Meeting of the Optical Society of America, Toronto, Canada, October 2-8, 1993.
67. Bashaw, M.C.; Hesselink, L.; Impacts of Materials Properties on Multiplex Holographic Data Storage, presented at Practical Holography VIII, IS&T/SPIE Symposium on Electronic Imaging: Science and Technology, San Jose, February 6-10, 1994.
68. Aharoni, A.; Jeganathan, M.; Bashaw, M. C.; Hesselink, L.; Prolonged readout of photorefractive holograms by replay at a longer wavelength, CLEO/IQEC 1994 Conference, Anaheim, CA. May 1994.
69. Aharoni, A.; Bashaw, M. C.; Hesselink, L.; A two-tone approach for prolonged readout of multiplexed photorefractive holograms, accepted for presentation at Nonlinear Optics: Materials, Fundamentals, and Applications sponsored by the IEEE/Lasers and Electro-Optics Society and the Optical Society of America, Waikaloa, Hawaii, July 24-29, 1994.
70. Bashaw, M. C.; Heanue, J. F.; Hesselink, L.; Crosstalk control for multiplex holography, accepted for presentation at Nonlinear Optics: Materials, Fundamentals, and Applications sponsored by the IEEE/Lasers and Electro-Optics Society and the Optical Society of America, Waikaloa, Hawaii, July 24-29, 1994.

71. Heanue, J. F.; Bashaw, M. C.; Hesselink, L.; Recall of Linear Combinations of Stored Data Pages Using Phase Code Multiplexing in Volume Holography, accepted for presentation at Nonlinear Optics: Materials, Fundamentals, and Applications sponsored by the IEEE/Lasers and Electro-Optics Society and the Optical Society of America, Waikaloa, Hawaii, July 24-29, 1994.
72. Jeganathan, M.; Bashaw, M. C.; Aharoni, A.; Hesselink, L.; Effect of Self-diffraction on Erasure Dynamics During Readout at Different Wavelengths and Geometries in Photorefractive Materials, accepted for presentation at Nonlinear Optics: Materials, Fundamentals, and Applications sponsored by the IEEE/Lasers and Electro-Optics Society and the Optical Society of America, Waikaloa, Hawaii, July 24-29, 1994.
73. Hesselink, Lambertus, "Materials for Holographic Data Storage," OSA Annual Meeting, Dallas, TX, October 1994.
74. Hesselink, L., Heanue, J.F., and Bashaw, M.C., "A digital holographic data storage system," 1994 Japan-U.S. Workshop on Functional Fronts in Advanced Ceramics (Boundaries and Defects), sponsored by the Science and Technology Agency (Japan) and the National Institute for Research in Inorganic Materials (Japan), Tsukuba, Japan, December 6-8, 1994, Paper PL4.
75. Bashaw, M.C., Heanue, J.F., and Hesselink, L., "Photorefractive Material Requirements for Holographic Data Storage," 1994 Japan-U.S. Workshop on Functional Fronts in Advanced Ceramics (Boundaries and Defects), sponsored by the Science and Technology Agency (Japan) and the National Institute for Research in Inorganic Materials (Japan), Tsukuba, Japan, December 6-8, 1994, Paper 5B1.
76. Bashaw, M.C., Heanue, J.F., and Hesselink, L., "Critical issues in volume holographic data storage," Fourth Meeting of the Topical Group on Phase Conjugation and Wave Mixing, Optical Society of Japan, Kobe, Japan, December 9, 1994.
77. Hesselink, Lambertus, "Critical Issues for Digital Volume Holographic Storage," IS&T/SPIE Photonics West '95, San Jose, CA, February 1995.
78. Hesselink, Lambertus, "Holographic Storage & Retrieval of Digital Data," OSA, Salt Lake City, UT, March 1995.
79. Hesselink, Lambertus, "Holographic Storage Materials & Systems," American Physical Society, San Jose, CA, March 1995.
80. Heanue, J. F., Bashaw, M.C., and Hesselink, L., "Volume holographic storage and retrieval of digital information," presented at the Conference on Lasers and Electro-Optics, Baltimore, May 22-26, 1995, Paper CMF5.
81. Hesselink, Lambertus, "Materials for Digital Holographic Data Storage," Second Mediterranean School & Topical Meeting, Cetraro, Italy, May 1995.
82. Hesselink, Lambertus, "Holographic Data Storage Systems and Photorefractive Materials," OSA Topical Meet, Photorefractive Materials, Effects & Devices, Estes Park, CO, June 1995.
83. Hesselink, Lambertus, "Holographic Systems" National Media Labs, Holographic Storage Review, Boulder, CO, June 1995.
84. Hesselink, Lambertus, "Optical Signal Processing & Holography," Gordon Research Conference, Optical Information Processing & Holography, Boston, MA, June 1995.
85. Hesselink, Lambertus, "Topology of Tensor Fields, 5th International Graphics & Visualization (Graphicon, invited speaker) St. Petersburg, July 1995.

86. Hesselink, Lambertus, "Volume Holographic Storage & Retrieval of Digital Data," International Symposium on Optical Memory '95, Ishikawa, Japan, August 1995.
87. Hesselink, L.; "Review of Systems Design Issues of Digital Holographic Memories," OSA '95 Topical Meet, Photosensitivity & Quadratic Nonlinearity in Glass Waveguides: Fundamentals and Applications, Portland, OR, September 1995.
88. Hesselink, Lambertus, "Digital Volume Holographic Data Storage Device," SPIE/Photonics West '95, International Symposium on Information, Communications and Computer Technology, Applications and Systems, Philadelphia, PA, October 1995.
89. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Direct-write E-beam Periodically Poled ~400nm Domains in Lithium Niobate Thin Films grown by Liquid Phase Epitaxy," Ukrainian Journal of Physics, 49(4), Pages: 382-388, 2004.
90. Jeganathan, M.; Bashaw, M. C.; Aharoni, A.; Hesselink, L.; "Effect of Self-diffraction on Erasure Dynamics During Readout at Different Wavelengths and Geometries in Photorefractive Materials," accepted for presentation at Nonlinear Optics: Materials, Fundamentals, and Applications sponsored by the IEEE/Lasers and Electro-Optics Society and the Optical Society of America, Waikaloa, Hawaii, July 24-29, 1994.
91. Aharoni, A.; Bashaw, M. C.; Hesselink, L.; "A two-tone approach for prolonged readout of multiplexed photorefractive holograms," accepted for presentation at Nonlinear Optics: Materials, Fundamentals, and Applications sponsored by the IEEE/Lasers and Electro-Optics Society and the Optical Society of America, Waikaloa, Hawaii, July 24-29, 1994.
92. Bashaw, M. C.; Heanue, J. F.; Hesselink, L.; "Crosstalk control for multiplex holography," accepted for presentation at Nonlinear Optics: Materials, Fundamentals, and Applications sponsored by the IEEE/Lasers and Electro-Optics Society and the Optical Society of America, Waikaloa, Hawaii, July 24-29, 1994.
93. Heanue, J. F.; Bashaw, M. C.; Hesselink, L.; "Recall of Linear Combinations of Stored Data Pages Using Phase Code Multiplexing in Volume Holography," accepted for presentation at Nonlinear Optics: Materials, Fundamentals, and Applications sponsored by the IEEE/Lasers and Electro-Optics Society and the Optical Society of America, Waikaloa, Hawaii, July 24-29, 1994.
94. Heanue, J. F., Bashaw, M.C., and Hesselink, L., "Volume holographic storage and retrieval of digital information," presented at the Conference on Lasers and Electro-Optics, Baltimore, May 22-26, 1995, Paper CMF5.
95. Heanue, John F.; Bashaw, Matthew C.; Hesselink, Lambertus "Volume holographic and retrieval of digital information," CLEO '95, Baltimore, MD, May 1995.
96. Heanue, John F.; Bashaw, Matthew C.; Hesselink, Lambertus "Encrypted data storage based on orthogonal-phase-code multiplexing in volume holography," Conference on Lasers and Electro-Optics, Baltimore, May 22-26, 1995, Paper CThI32.
97. Bashaw, M.C., Singer, R.C., Heanue, J. F., and Hesselink, L., "Geometric- and mosaic-wavelength multiplexing for volume-holographic data storage," Conference on Lasers and Electro-Optics, Baltimore, May 22-26, 1995, Paper CMF4.
98. Jeganathan, Muthu; Bashaw, Matthew C.; Hesselink, Lambertus "Soliton-like propagation of the grating envelope during readout of photorefractive gratings," CLEO '95, Baltimore, MD, May 1995.
99. Smith, Stephen Lee; Hesselink, Lambertus; Partovi, Afshin "Transient current response of photorefractive quantum-well devices," CLEO '95, Baltimore, MD, May 1995.
100. Waseda International Symposium on Phase Conjugation & Wave Mixing (Waseda Symposium), "Recent Advances in Digital Holographic Data Storage" Waseda University, Tokyo, Japan, June 8-10, 1997.

101. Waseda International Symposium on Phase Conjugation & Wave Mixing (Waseda Symposium), "Radial inhomogeneties in a-axis grown strontium barium niobate fibers prepared by laser heated pedestal growth technique in different conditions," Waseda University, Tokyo, Japan, June 8-10, 1997.
102. 1997 Topical Meeting on Photorefractive Materials, Effects and Devices (PR '97), "Phase-instabilities, scattering centers in oxide crystals addressed to high density holographic data storage systems," Nihon Aerobics Center, Chiba, Japan, June 11-13, 1997.
103. AIAA Computational Fluid Dynamics Conference, Scientific Visualization, "Visualization of 3-D Tensor Fields," Snowmass, CO, June 29, 1997.
104. Hesselink, L., and Orlov, S., "Recent Advances in Holographic Data Storage: Pre-Cursor for Commercialization," proceedings ISOM 2002.
105. Hesselink, L., "Materials Requirements for Dense Optical Data Storage," proceedings of the First International Glass and Photonics workshop, 2002.
106. Hesselink, L., Shi, Xiaolei, "Ultra-High Power Transmission Through a Single Nano-aperture," proceedings of ICOLA 2002, Djakarta, Indonesia.
107. Hesselink, L., "Internet-Based Remotely Controlled Laboratories," proceedings DMS 2002.
108. Fe, Y., Bonitou, D., Schuwelywk, A., Hesselink, L., Sturman, B., and Odoulov, S., "Coupling of Orthogonally Polarized Waves and Vectorial Coherent Oscillation in Periodically Poled LiNbO₃," J.A.P., May 2002.
109. Denz, C., Beger, G., Muller, K. O., Tschudy, T., Orlov, S., Phillips, W., and Hesselink, L., "Content Addressable Data Storage in Holographic Memories Based on Phase-Coded Multiplexing," (2001)
110. "Rear surface spallation on single-crystal silicon in nanosecond laser micromachining," Jun Ren, Sergei S. Orlov, and Lambertus Hesselink, *J. Appl. Phys.*, Vol.97, 104304 (2005)
111. "Laser ablation of silicon in water with nanosecond and femtosecond pulses," Jun Ren, Michael Kelly, and Lambertus Hesselink, *Optics Letters*, Vol. 30, no. 13, (2005) (Paper selected in the July 2005 issue of Virtual Journal of Ultrafast Science).
112. "Realtime study of plume ejection dynamics in silicon laser ablation under 5ns pulses," Jun Ren, Xiaobo Yin, Sergei S. Orlov, and Lambertus Hesselink, (accepted by *J. Appl. Phys. Rapid Communications*, under further review consideration for *Appl. Phys. Lett.*)
113. J. W. Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", TOPS. Vol. 99, 10th Int. Conf. on photorefractive effects, materials and devices
114. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink,, "Direct-write E-beam Sub-Micron Domain Engineering in Liquid Phase Epitaxy LiNbO₃ Thin Films", *SPIE Proceedings*, Vol. 5728, 283-290, 2005.
115. Ultra-high density optical data storage, Hesselink, Lambertus; Leen, Brian; Matteo, Joe; Sun, Liying; Yuen, Yin, Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS; 2004; v.2, p.796-797, Conference: 2004 IEEE LEOS Annual Meeting Conference Proceedings, LEOS 2004; Nov 7-11 2004; Rio Grande, Puerto Rico
116. Topology visualization of the optical power flow through a novel C-shaped nano-aperture. Sun, L.; Batra, RK; Xiaolei Shi; Hesselink, L. IEEE Visualization 2004, 10-15 Oct. 2004, Austin, TX, USA; p.337-44, Conference: IEEE Visualization 2004, 10-15 Oct. 2004, Austin, TX, USA

- 117.Characterization of a preliminary narrow-band absorption material for holographic data storage. Dubois, M.; Xiaolei Shi; Lawrence, BL; Boden, EP; Kwok Pong Chan; Nielsen, M.; Hesselink, L. Proceedings of the SPIE - The International Society for Optical Engineering; 2004; vol.5380, no.1, p.589-96, Conference: Optical Data Storage 2004, 18-21 April 2004, Monterey, CA, USA
- 118.Nanosecond laser silicon micromachining. Ren, J.; Orlov, SS; Hesselink, L.; Howard, H.; Conneely, AJ Source: Proceedings of the SPIE - The International Society for Optical Engineering; 2004; vol.5339, no.1, p.382-93, Conference: Photon Processing in Microelectronics and Photonics III, 26-29 Jan. 2004, San Jose, CA, USA
- 119.Spectral study of enhanced transmission through single C-shaped nano-apertures. Matteo, JA; Fromm, DP; Yin Yuen; Schuck, PJ; Moerner, WE; Hesselink, L. International Quantum Electronics Conference (IQEC), 16-21 May 2004, San Francisco, CA, USA; 1500p.; 4p. Conference: International Quantum Electronics Conference (IQEC), 16-21 May 2004, San Francisco, CA, USA
- 120.Nanosecond laser silicon micromachining, Ren, Jun; Orlov, Sergei S.; Hesselink, Lambertus; Howard, Helen; Conneely, Alan, Proceedings of SPIE - The International Society for Optical Engineering; 2004; v.5339, p.382-393, Conference: Photon Processing in Microelectronics and Photonics III; Jan 26-29 2004; San Jose, CA, United States
- 121.Characterization of a preliminary narrow-band absorption material for holographic data storage, Dubois, Marc; Shi, Xiaolei; Lawrence, Brian; Boden, Eugene; Chan, Kwok Pong; Nielsen, Matthew; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2004; v.5380, p.589-596, Conference: Optical Data Storage 2004; Apr 18-21 2004; Monterey, CA, United States
- 122.Topology visualization of the optical power flow through a novel C-shaped nano-aperture, Sun, Liying; Batra, Rajesh K.; Shi, Xiaolei; Hesselink, Lambertus, IEEE Visualization 2004 - Proceedings, VIS 2004; 2004; p.337-344, Conference: IEEE Visualization 2004 - Proceedings, VIS 2004; Oct 10-15 2004; Austin, TX, United States
- 123.Ultra-high density optical data storage., Hesselink, L.; Leen, B.; Matteo, J.; Liying Sun; Yin Yuen, 2004 IEEE LEOS Annual Meeting Conference Proceedings, 7-11 Nov. 2004, Rio Grande, Puerto Rico; p.796-7 Vol.2, Conference: 2004 IEEE LEOS Annual Meeting Conference Proceedings, 7-11 Nov. 2004, Rio Grande, Puerto Rico
- 124.Liying Sun, Rajesh K. Batra, Xiaolei Shi, Lambertus Hesselink, "Topology Visualization of the Optical Power Flow through a Novel C-shaped Nano- Aperture," Visualization October 10-15, 2004, accepted for October 5, 2004 conference proceedings.
- 125.J. W. Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", TOPS. Vol. 99, PR'05, 10th Int. Conf. on photorefractive effects, materials and devices, Hainan China, July 2005.
- 126.J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink., "Direct-write E-beam Sub-Micron Domain Engineering in Liquid Phase Epitaxy LiNbO₃ Thin Films", *SPIE Proceedings*, Vol. 5728, 283-290, 2005.
- 127.J. W. Son and L. Hesselink, "Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam Techniques", Plenary Talk, 10th Int. Conf. on photorefractive effects, materials and devices, Hainan, P. R. China, 2005.
- 128.J. W. Son, S. Orlov, W. Phillips, and L. Hesselink, "Pulsed laser deposition of single phase LiNbO₃ thin film waveguides", International Conference on Electroceramics-2005, Seoul, Korea, 2005.
- 129.J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink., "Direct-write E-beam Sub-Micron Domain Engineering in Liquid Phase Epitaxy LiNbO₃ Thin Films", Photonics West, San Jose, USA, 2005

130. Electromagnetic phenomena in advanced photomasks, Schellenberg, FM; Adam, K; Matteo, J; Hesselink, L. Journal of Vacuum Science and Technology B: Microelectronics and Nanometer Structures; November/December 2005; v.23, no.6, p.3106-3115
131. Fractal extensions of near-field aperture shapes for enhanced transmission and resolution, Matteo, JA; Hesselink, L, Optics Express; January 2005; v.13, no.2, p.636-647
132. Characterization of a preliminary narrow-band absorption material for holographic data storage, Dubois, Marc; Shi, Xiaolei; Lawrence, Brian; Boden, Eugene; Chan, Kwok Pong; Nielsen, Matthew; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2004; v.5380, p.589-596, Conference: Optical Data Storage 2004; Apr 18-21 2004; Monterey, CA, United States
133. Topology visualization of the optical power flow through a novel C-shaped nano-aperture, Sun, Liying; Batra, Rajesh K.; Shi, Xiaolei; Hesselink, Lambertus, IEEE Visualization 2004 - Proceedings, VIS 2004; 2004; p.337-344, Conference: IEEE Visualization 2004 - Proceedings, VIS 2004; Oct 10-15 2004; Austin, TX, United States
134. Ultra-high density optical data storage., Hesselink, L.; Leen, B.; Matteo, J.; Liying Sun; Yin Yuen, 2004 IEEE LEOS Annual Meeting Conference Proceedings, 7-11 Nov. 2004, Rio Grande, Puerto Rico; p.796-7 Vol.2, Conference: 2004 IEEE LEOS Annual Meeting Conference Proceedings, 7-11 Nov. 2004, Rio Grande, Puerto Rico.
135. Polarization effects in plasmonic masks, Schellenerg, F; Adam, K; Sun, LY, Matteo, J; Hesselink, L, Microelectronic Engineering, April-September 2006, vol. 83, no. 4-9, p. 919-22.
136. Media tilt tolerance of bit-based and page-based holographic storage systems Takashima, Yuzuru; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2006; v.6335, Conference: Organic Holographic Materials and Applications IV; 2006; San Diego, CA, United States
137. Media tilt tolerance of bit-based and page-based holographic storage systems, Takashima, Yuzuru; Hesselink, Lambertus, 2006 Optical Data Storage Topical Meeting - Post Deadline Papers; 2006; p.221-223, Conference: 2006 Optical Data Storage Topical Meeting; 2006; Montreal, QB, Canada
138. Highly sensitive surface plasmon resonance chemical sensor based on Goos-Hanchen effects, Yin, Xiaobo; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2006; v.6324 Conference: Plasmonics: Nanoimaging, Nanofabrication, and their Applications II; 2006; San Diego, CA, United States
139. En-squared power based optical design for page-based holographic storage systems, Takashima, Yuzuru; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2006; v.6342 I Conference: International Optical Design Conference 2006; Vancouver, BC, Canada
140. Lens designs for page-based holographic storage systems, Takashima, Yuzuru; Orlov, Sergei; Hesselink, Lambertus, Department of Electrical Engineering Stanford University 420 Via Palou Mall ; Stanford, CA 94305 ; United States, Proceedings of SPIE - The International Society for Optical Engineering; 2007; v.6620, Conference: * Optical Data Storage 2007; Portland, OR, United
141. Highly sensitive surface plasmon resonance chemical sensor based Goos-Hänchen effects, X. B. Yin, L. Hesselink, Proceedings of SPIE 6324, (2006).
142. 90 degree bent metallic waveguide with a tapered C-shaped aperture for use in HAMR, Leen, J. Brian; Cho, Eunhyoung; Sun, Sung-Dong; Hansen, Paul C.; Sohn, Jin-Seung; Choa, Sung-Hoon; Hesselink, Lambertus, Dept. of Applied Physics Stanford University ; Stanford, CA 94305, Proceedings of SPIE - The International Society for Optical Engineering; 2007; v.6620, Conference: Optical Data Storage 2007; Portland, OR, United States

143. High-intensity bowtie nano-aperture Vertical-Cavity Surface-Emitting Laser for ultrahigh-density near-field optical data storage, Rao, Zhilong; Hesselink, Lambertus; Harris, James S., Solid State and Photonics Laboratory Stanford University ; Stanford, CA 94305, Proceedings of SPIE - The International Society for Optical Engineering; 2007; v.6620, Optical Data Storage 2007; Portland, OR, United States
144. Media tilt tolerance of bit-based and page-based holographic storage Systems, Takashima, Yuzuru; Hesselink, Lambertus, Department of Electrical Engineering Stanford University 420 Via Palou Mall ; Stanford, CA 94305 ; United States, Proceedings of SPIE - The International Society for Optical Engineering; 2006; v.6335, Conference: Organic Holographic Materials and Applications IV; 2006; San Diego, CA, United States
145. Pulsed laser deposition of single phase LiNbO_3 thin film waveguides, Son, JW; Orlov, SS; Phillips, B; Hesselink, L., Solid State Photonics Lab. Stanford University ; Stanford, CA 94305; United States, Institution: Stanford Univ, Solid State Photon Lab, Stanford, CA 94305 USA; Stanford Univ, Solid State Photon Lab, Stanford, CA 94305 USA, Journal of Electro-ceramics; 2006; v.17, no.2-4, p.591-595, Publisher: SPRINGER
146. "90° Bent Metallic Waveguide with a Tapered C-shaped Aperture for Use in HAMR", John B. Leen, Eunhyoung Cho, Sung-Dong Suh, Paul C. Hansen, Jin-Seung Sohn, Sung-Hoon Choa, Lambertus Hesselink, Optical Data Storage 2007, Proceedings of SPIE - The International Society for Optical Engineering; 2007; v.6620
147. J. B. Leen, P. Hansen, Y.-T. Cheng, A. Gibby, and L. Hesselink, "Near-field optical data storage using C-apertures," Post Deadline Presentation, International Symposium on Optical Memory, October 2009, Nagasaki, Japan
148. J. B. Leen, P. Hansen, Y.-T. Cheng, and L. Hesselink, "Inspection of Metallic Interconnects Using a C-aperture SNOM", Presentation, Stanford Photonics Research Conference, September 14-16, 2009, Stanford, CA.
149. Y. Takashima Y. Cheng, P. Hansen, Y. Yuen, L. Hesselink, R. F. Pease, J. R. Maldonado and P. A. Pianetta, "Experimental Verification of a $\lambda/50$ Optical Spot Size of a C-aperture Nano Antenna Tip for Photo-electron Emitter Applications, In The 23rd International Vacuum Nanoelectronics Conference, Palo Alto, California (2010).
150. Y. Takashima, L. Hesselink, "Design and implementation of recording and readout system for micro-holographic optical data storage" Proc. SPIE 7786 (2010).
151. P. Hansen, L. Hesselink, Design Optimization for Nanophotonic Devices using Using Adjoint FDTD, SPRC 2010 Annual Symposium, September 13-15, 2010, Stanford, CA, USA
152. L. Hesselink, Recent developments in Near-Field Optical Transducers for Data Storage, ODS Annual Meeting, Boulder Co, May 2010
153. Takashima, Y. et al., Novel Optical Architecture for High Capacity and High Data Transfer Rate Holographic Data Storage, CLEO 2011, May 2011
154. Yao-Te Cheng et al., Sub15 nm Photo-electron source using a Nano-aperture integrated with a nano-antenna, CLEO 2011, May 2011
155. Koc, A, Ozaktas, H.M., Hesselink, L., Fast and accurate algorithms for quadratic phase integrals in optics and signal processing, Proc SPIE, vol 8043, p 804304-804309 (2011)
156. Takashima, Y, Hesselink, L., Design and implementation of recording and readout system for micro-holographic optical data storage, Proc. SPIE, vol 7786, pg 778608-778613 (2011)
157. Takashima, Y et al., Experimental verification of $\lambda/50$ optical spot size of a C-aperture nano-antenna tip for photo-emitter applications, International Vacuum Nanoelectronics Conference, p113-114 (2011)

158. Hansen, P., et al., Nanophotonic device optimization with adjoint FDTD, CLEO 2011
159. Hesselink, L., Yin, Xiaobo, Ultra-high resolution surface plasmon resonance bio-sensor based on Goos-Hanchen effect, American Chemical Society, vol 234 (2011)
160. Y. Takashima, L. Hesselink. "Design and implementation of multi-layer and multi-bit micro holographic optical data storage employing blue lasers", SPIE Current Developments in Lens Design and Optical engineering XIII 8486 OF (2012).
161. Y. T. Cheng, L. Hesselink, R. F. Pease, J. Maldonado, Y. Takashima, C. Huynh, and L. Scipioni, "Nanoscale Photoelectron Emission Using C-shaped Nanoapertures with Cesium Bromide Photocathode", The 56th International Conference on Electron, Ion, and Photon Beam Technology and Nanofabrication (2012).
162. Yao-Te Cheng, Juan R. Maldonado, Yuzuru Takashima, Chuong Huynh, Larry Scipioni, R. Fabian Pease, and Lambertus Hesselink, "Nano-scale multiple-axis photoelectron source using focused helium ion beam fabricated C-aperture nano-tip", Photonic West 2012, San Francisco, CA(2012).
163. Yao-Te Cheng, Juan R. Maldonado, Yuzuru Takashima, Chuong Huynh, Larry Scipioni, Lambertus Hesselink, and R. Fabian Pease, "Nanoscale photoelectron emission using C-shaped nanoapertures with CsBr photocathode", EIPBN 2012, Waikoloa, HI (2012)
164. Juan R. Maldonado and Piero Pianetta, Yao-Te Cheng, Lambertus Hesselink, and R. Fabian Pease, Yuzuru Takashima, Chuong Huynh and Larry Scipioni, Carl Zeiss NTS, Inc., Peabody, MA 01960, CsBr based photoelectron nano sources 01960, CsBr based photoelectron nano sources (2012)
165. Y. Takashima, Toan Tran, L. Hesselink "Design and implementation of wearable head-up display for mobile phone applications" in Advances in Display Technologies II, San Francisco (2012)
166. J. Piper, P. Hansen, L. Hesselink, "Fundamentals of excitation and resonance of a Near-Field Transducer in the presence of a conductive magnetic recording medium, SPIE Photonics West, San Francisco (2012)
167. P. Hansen, J. Piper, L. Hesselink, "FDTD Optimization of Near Field Optical Transducers", SPIE Photonics West, San Francisco (2012)
168. Juan R. Maldonado and Piero Pianetta, Yao-Te Cheng, Lambertus Hesselink, and R. Fabian Pease, Yuzuru Takashima, Chuong Huynh and Larry Scipioni, "CsBr based photoelectron nano sources" 01960, CsBr based photoelectron nano sources (2012)
169. Carlo Scalo, Jeffrey Lin, Sanjiva K. Lele and Lambertus Hesselink, Towards full-scale modeling of a traveling-wave thermoacoustic engine, proceedings of the AIAA Fluid Dynamics Conference and Exhibit, San Diego, California. (June 2013)
170. Carlo Scalo, Sanjiva K. Lele and Lambertus Hesselink, Numerical investigation of a traveling-wave thermoacoustic heat engine, Annual Research Briefs, Center for Turbulence Research, Stanford University, Stanford California. (Dec. 2013)
171. Carlo Scalo, Jeffrey Lin, Sanjiva K. Lele, and Lambertus Hesselink, Full-scale simulation and reduced-order modeling of a thermoacoustic engine, published in the bulletin of the 66th Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, Pennsylvania (Nov. 2013)
172. Invited, L. Hesselink, "Nano Optical Photo Electron Source", CC3DMR, Jeju Island, Korea (Jun 2013)
173. Invited, L. Hesselink, "Differential Phase Contrast 3-D imaging", ISPD, Beijing, China (Jun 2013)
174. Invited, L. Hesselink, "Differential Phase Contrast 3-D Imaging system and Applications, DHS Symposium, Washington DC, (Aug 2013)

175. Ryan, J., Zheng, Y., Hansen, P., Huang, T., Hesselink, L. "Simultaneous transport of multiple nanoparticles across a patterned plasmonic substrate" 2015 Conference on Lasers and Electro-Optics (CLEO). Proceedings Pages: 2 pp. (2015)
176. Lin Jeffrey, Carlo Scalo, and Lambertus Hesselink. "High-Fidelity Simulation of an Ultrasonic Standing-Wave Thermoacoustic Engine with Bulk Viscosity Effects." In 55th AIAA Aerospace Sciences Meeting. American Institute of Aeronautics and Astronautics, (January 2017)

TECHNICAL REPORTS

1. Y. Takashima, A. Koc, P. Hansen and L. Hesselink, 2009 Activity Report for GE Global Research Center (Dec. 2009)
2. A. Koc, Y. Takashima and L. Hesselink, Quarterly Report for GE Global Research Center, Details of the Micro Holographic Writing/Readout Model Based on Couple-Wave Analysis (April 28, 2010)
3. Y. Takashima, A. Koc, P. Hansen and L. Hesselink, Optical system design for 405nm multi-layer dynamic test system by modifying the 532nm multi-layer dynamic test system (Dec. 15, 2010)
4. Takashima, Y. et al., Novel Optical Architecture for High Capacity and High Data Transfer Rate Holographic Data Storage (2011)
5. Yao-Te Cheng et al., Sub15 nm Photo-electron source using a Nano-aperture integrated with a nano-antenna, DARPA final report (2011)
6. Cheng, Yuxin, et al., Report on the Nano Optical Conveyor Belt, NSF annual report (2011)
7. DARPA, Final Report, "Photo-electron source arrays" (2012)
8. DHS monthly progress report, 1, "DPC Imaging and Photo Electron X-ray Source" (2012)
9. DHS monthly progress report, 2, "DPC Imaging and Photo Electron X-ray Source" (2012)
10. DHS monthly progress report, 3, "DPC Imaging and Photo Electron X-ray Source" (2012)
11. DHS monthly progress report, 4, "DPC Imaging and Photo Electron X-ray Source" (2012)
12. DHS monthly progress report, 5, "DPC Imaging and Photo Electron X-ray Source" (2012)
13. DHS monthly progress report, 6, "DPC Imaging and Photo Electron X-ray Source" (2012)
14. DHS monthly progress report, 7, "DPC Imaging and Photo Electron X-ray Source" (2012)
15. DHS monthly progress report, 8, "DPC Imaging and Photo Electron X-ray Source" (2012)
16. DHS quarterly progress report, 1, "DPC Imaging and Photo Electron X-ray Source" (2012)
17. DHS quarterly progress report, 2, "DPC Imaging and Photo Electron X-ray Source" (2012)

18. DHS quarterly progress report, 3, "DPC Imaging and Photo Electron X-ray Source" (2012)
19. NSF Annual Report, 'Nano Optical Conveyor Belt, August (2012)
20. DHS monthly progress report 14, "DPC Imaging and Photo Electron X-Ray Source" (2013)
21. DHS monthly progress report 15, "DPC Imaging and Photo Electron X-Ray Source" (2013)
22. DHS monthly progress report 16, "DPC Imaging and Photo Electron X-Ray Source" (2013)
23. DHS monthly progress report 17, "DPC Imaging and Photo Electron X-Ray Source" (2013)
24. DHS monthly progress report 18, "DPC Imaging and Photo Electron X-Ray Source" (2013)
25. DHS monthly progress report 19, "DPC Imaging and Photo Electron X-Ray Source" (2013)
26. DHS monthly progress report 20, "DPC Imaging and Photo Electron X-Ray Source" (2013)
27. DHS monthly progress report 21, "DPC Imaging and Photo Electron X-Ray Source" (2013)
28. DHS monthly progress report 22, "DPC Imaging and Photo Electron X-Ray Source" (2013)
29. DHS monthly progress report 23, "DPC Imaging and Photo Electron X-Ray Source" (2013)
30. DHS monthly progress report 24, "DPC Imaging and Photo Electron X-Ray Source" (2013)
31. DHS monthly progress report 25, "DPC Imaging and Photo Electron X-Ray Source" (2013)
32. Final NSF report on "Nano Optical Conveyor Belt, August 2013

PATENTS

U.S. PATENTS AWARDED

1. 4,171,915 Hesselink, L "Laser Interferometer Probe"
2. 4,674,824: Goodman, J. W. , Hesselink, L. "System for enhancement of optical features"
3. 4,927,220 Hesselink, L., Redfield, S. R. "System and method for photorefractive holographic recording and signal processing"
4. 4,953,924 Redfield, S. R., Hesselink, L. "Enhanced nondestructive holographic reconstruction"
5. 5,450,218 Heanue, J. F., Bashaw, M. C., Hesselink, L. "Method for encoding and decoding digital data in holographic storage media"
6. 5,640,256 DeVre, R., Hesselink, L. "Dynamic multiple wavelength filter using a stratified volume holographic optical element"

7. 5,665,493 Bai, Y.S., Kachru, R., Hesselink, L., Macfarlane, R. "Gated recording of holograms using rare-earth doped ferroelectric materials"
8. 5,684,612 Wilde, J.P., Hesselink, L. "Method and system for maintaining and controlling the signal-to-noise ratio of holograms recorded in ferroelectric photorefractive materials"
9. 5,729,364 Bashaw, M.C., Heanue, J., Hesselink, L. "Ion and impurity concentration optimization in photorefractive media for dynamic and fixed holography"
10. 5,740,184 Heanue, J.F., Gurkan, K., Hesselink, L. "Decision feedback viterbi detector for page-access optical memories"
11. 5,844,700 Muthuveerappan, J., Bashaw, M., Hesselink, L. "Spatio-angular multiplexing geometry for volume holographic storage"
12. 5,850,299 Lande, D., Heanue, J.F., Bashaw, M.C., Hesselink, L. "Method of choosing an optimum angle between a reference beam and an object beam to record a hologram"
13. 5,877,873 Bashaw, M.C., Heanue, J. F., Hesselink, L. "Differential video image compression in holographic media"
14. 5,940,514 Heanue, J.F. , Bashaw, M.C., Hesselink, L. "Encrypted holographic data storage based on orthogonal phase code multiplexing"
15. 5,995,251 Hesselink, L., Heanue, J. F., Daiber, A. J. "Apparatus for holographic data storage"
16. 6,020,985 McLeod, R.R., Sochava; S. L., Daiber, A. J., McDonald, M. E., Hesselink, L., Sander, I., Slagle, T.M. "Multilayer reflection microhologram storage in tape media"
17. 6,023,355 Bashaw, M., Heanue, J.F., Hesselink, L. "Coded-wavelength multiplex volume holography"
18. 6,104,511 Hesselink, L., McDonald; M. E., Heanue, J. F., Daiber, A. J. "Reflector-based off-axis optical system for holographic storage"
19. 6,212,148 Hesselink, L., McLeod, R. R., Sochava, S. L., Phillips, W. "Optical data storage by selective localized alteration of a format hologram"
20. 6,310,850 Sochava, S., Orlov; S., Honda, T., Cumpston, B. H., Hesselink, L. "Method and apparatus for optical data storage and/or retrieval by selective alteration of a holographic storage medium"
21. 6,414,763 Hesselink, L., Bashaw, M. C. "Digital holographic camera system and method having removable media"
22. 6,499,054 Hesselink, L., Rizal, D., Bjornson, E.S. "Control and Observation of physical devices, equipment and processes by multiple users over computer networks"
23. 6,512,606 Lipson, M., Sochava, S., Hesselink, L., Cumpston, B. H., McLeod, R.R., Claude, C.D. "Optical storage media and method for optical data storage via local changes in reflectivity of a format grating"
24. 6,540,397 Yoshinari, J., Tsukagoshi, T., Hirata, H., Hayashida, N., Honda, T., McDonald, M.E., Morelli, M.V., Daiber, A.J., Ghose, S., Hesselink, L., Nishimura, S., Sochava, S. "Optical information storage medium"
25. 6,574,174 Amble, J. R., Hesselink, L., Honda, T., McDonald, M.E., Morelli, M.V., Daiber, A. J., Ferrier, H. A., Ghose, S., Kridl, T. A., Lipson, M., Nishimura, S., Sochava, S., Volz, L. A. "Optical data storage system with multiple layer media"

26. 6,574,257 Thornton; R.L., Hesselink, L., "Near-field laser and detector apparatus and method"
27. 6,614,741 Hesselink, L., McLeod, R. R., Sochava, S. L., "Optical data storage by selective localized alteration of a format hologram in a holographic storage disk"
28. 6,732,158 Hesselink, L., Rizal, D., Beurden, J. "VCR webification"
29. 6,807,131 Hesselink, L., Stinson, D.G., Thornton, R.L., Malmhall, R.F. "Near field hybrid magnetic optical head system"
30. 7,120,692 Hesselink, L., Rizal, D., Bjornson, E.S. "Access and control system for network-enabled devices"
31. 7,129,006 Hesselink, L., Cumpston, B. H., Lipson, M. "Optical data storage system and method"
32. 7,327,445 Yin, X., Hesselink, L. "Enhanced surface plasmon resonance sensor using Goos-Hanchen effect"
33. 7,423,265 Matteo, J.A., Hesselink, L., Yuen, Y. "Near-field aperture having a fractal iterate shape"
34. 7,467,187 Hesselink, L., Rizal, D., Bjornson, E.S. "Control and observation of physical devices, equipment and processes by multiple users over computer networks"
35. 7,546,353 Hesselink, L., Rizal, D., Bjornson, E.S. "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
36. 7,587,467 Hesselink, L., Rizal, D., Bjornson, E.S. "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
37. 7,600,036 Hesselink, L., Rizal, D., Bjornson, E.S. "Access and control system for network-enabled devices"
38. 7,788,404 Hesselink, L., Rizal, D., Bjornson, E.S. "Access and control system for network-enabled devices"
39. 7,917,628 Hesselink, L., Rizal, D., Bjornson, E.S. "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
40. 7,934,251 Hesselink, L., Rizal, D., Bjornson, E.S. "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
41. 8,196,217 Cheng Y-T, Yuen, Y., Hansen, P.C., Takashima, Y., Hesselink, L. "Tip-enhanced resonant apertures"
42. 8,341,275 Hesselink, L., Rizal, D., Bjornson; E. S. "Access and Control System for network-enabled devices"
43. 8,352,567 Hesselink, L., Rizal, D., van Beurden, J., Bjornson; E.S. "VCR Webification"
44. 8,374,068 Takashima, Y., Hesselink, L. "Focusing and imaging compatible objective lenses for pixel-based and/or bit-based optical data recording and retrieval"
45. 8,526,798 Hesselink, L., "Portable content container displaying A/V files in response to a command received from a consumer device"
46. 8,661,507 Hesselink, L., Rizal, D., Bjornson, E. S. "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
47. 8,688,797 Hesselink, L., Rizal, D., Bjornson, E. S. "Managed peer-to-peer applications, systems and methods for distributed data access and storage"

48. 8,793,374 Hesselink, L., Rizal, D., Bjornson, E. S. "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
49. 8,831,217 Blankenbeckler, D. L. Ybarra, D., Hesselink, L., "Digital rights management system and methods for accessing content from an intelligent storage"
50. 8,831,218 Blankenbeckler, D. L. Ybarra, D., Hesselink, L., "Digital rights management system and methods for provisioning content to an intelligent storage"
51. 8,861,941 Hesselink, L., "Portable content container displaying A/V files in response to a command received from a consumer device"
52. 8,914,634 Blankenbeckler, D. L. Ybarra, D., Hesselink, L., "Digital rights management system transfer of content and distribution"
53. 9,071,574 Hesselink, L., Rizal, D., Bjornson, E. S. "Access and control system for network-enabled devices"
54. 9,129,138 Hesselink, L. and Batra, R., "Methods and systems for a portable data locker"
55. 9,191,443 Hesselink, L., Rizal, D., Bjornson, E. S., "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
56. 9,214,184 Blankenbeckler, D. L. Ybarra, D., Hesselink, L., "Digital rights management system, devices, and methods for binding content to an intelligent storage device"
57. 9,247,284 Hesselink, L., "Portable content container displaying A/V files in response to a command received from a consumer device"
58. 9,342,701 Blankenbeckler, D. L., Ybarra, D. O., Hesselink, L., "Digital rights management system and methods for provisioning content to an intelligent storage"
59. 9,348,864 Hesselink, L., Rizal, D., Bjornson, E. S., "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
60. 9,406,488 Maldonado, J. R., Cheng, Y-T, Pianetta, P., Pease, R. F. W., Hesselink, L., "Enhanced photoelectron sources using electron bombardment"
61. 9,424,400 Blankenbeckler, D. L., Ybarra, D. O., Hesselink, L., "Digital rights management system transfer of content and distribution"
62. 9,520,260 Hesselink L., Fabian R., Pease W., Pianetta P., Maldonado J. R., Cheng Y-T, and Ryan J., "Photo emitter x-ray source array (PeXSA)"

U.S. PATENT APPLICATIONS

1. 20160261680 Hesselink, L., Rizal, D., Bjornson, E. S., "Managed Peer-To-Peer Applications, Systems And Methods For Distributed Data Access And Storage"
2. 20160146153 Hesselink, L., Bruder, G. A., Pickens, M. A., Batra, R., Troy, N.W., Dyson, JR., Rodger, W., "Secure Control System for Multistage Thermo Acoustic Micro-CHP Generator"
3. 20160065587 Hesselink, L., Batra, R.K., "Methods and Systems for A Portable Data Locker"

4. 20140265828 Maldonado, J. R. Cheng, Y-T, Pianetta, P., Pease, R. F. W., Hesselink, L. "Enhanced photoelectron sources using electron bombardment"
5. 20140079188 Hesselink, L., Pease, R. F. W., Pianetta, P., Maldonado, J. R., Cheng, Y-T., Ryan, J., "Photo Emitter X-Ray Source Array (PeXSA)"
6. 20130268771 Blankenbeckler, D. L., Ybarra, D., Hesselink, L., "Digital rights management system and methods for accessing content from an intelligent storage"
7. 20130268759 Blankenbeckler, D. L., Ybarra, D., Hesselink, L., "Digital rights management system transfer of content and distribution"
8. 20130268749 Blankenbeckler, D. L., Ybarra, D., Hesselink, L., "Digital rights management system and methods for provisioning content to an intelligent storage"
9. 20130266137 Blankenbeckler, D. L., Ybarra, D., Hesselink, L., "Digital rights management system, devices, and methods for binding content to an intelligent storage device".
10. 20130009853 Hesselink, L., Takashima, Y. "Eye-Glasses mounted display"
11. 20120169065 Hesselink, L., Gibbons, J. "Home energy systems"
12. 20120036041 Hesselink, L., "Methods and systems for a personal multimedia content archive"
13. 20110150436 Hesselink, L., "Portable content container displaying A/V files in response to a command received from a consumer device"
14. 20110055984 Cheng, Y-T., Yuen, Y., Hansen, P. C., Takashima, Y., Hesselink, L. "Tip-enhanced resonant apertures"
15. 20090225644 Takashima, Y., Hesselink, L. "Focusing and imaging compatible objective lenses for pixel-based and/or bit-based optical data recording and retrieval"
16. 20080088903 Matteo, J. A., Hesselink, L., Yuen, Y., "Near-Field Aperture Having A Fractal Iterate Shape"
17. 20070159633 Yin, X., Hesselink, L. "Enhanced surface plasmon resonance sensor using Goos-Hanchen effect"
18. 20060277314 Hesselink, L., Rizal, D., Bjornson, E. S. "Access and control system for network-enabled devices"
19. 20050268334 Hesselink, L., Rizal, D., Bjornson, E. S. "Access and control system for network-enabled devices"
20. 20050221228 Shi, X., Hesselink, L. "Near field optical storage mask layer, disk, and fabrication method"
21. 20050149481 Hesselink, L. Rizal, D., Bjornson, E. S., "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
22. 20050144200 Hesselink, L. Rizal, D., Bjornson, E. S., "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
23. 20050144195 Hesselink, L. Rizal, D., Bjornson, E. S., "Managed peer-to-peer applications, systems and methods for distributed data access and storage"

24. 20050144186 Hesselink, L. Rizal, D., Bjornson, E. S., "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
25. 20050138186 Hesselink, L. Rizal, D., Bjornson, E. S., "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
26. 20050120082 Hesselink, L. Rizal, D., Bjornson, E. S., "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
27. 20050114711 Hesselink, L. Rizal, D., Bjornson, E. S., "Managed peer-to-peer applications, systems and methods for distributed data access and storage"
28. 20050031278 Shi, X., Hesselink, L. "Near-field sub-wavelength apertures"
29. 20050030993 Thornton, R. L., Shi, X., Hesselink, L. "Near field optical apparatus"
30. 20050030883 Hesselink, L., Stinson, D.G., Thornton, R.L., Malmahall, R. F., "Near-field hybrid magnetic-optical head system"
31. 20040202054 Hesselink, L., Stinson, D.G., Thornton, R.L., Malmahall, R. F., "Near-field hybrid magnetic-optical head system"
32. 20040172449 Hesselink, L., Rizal, D., van Beurden, J., Bjornson, E.S. "VCR webification"
33. 20040009406 Hesselink, L., Cumpston, B.H., Lipson, M. "Optical data storage system and method"
34. 20030191848 Hesselink, L., Rizal, D., Bjornson, E.S. "Access and control system for network-enabled devices"
35. 20030051006 Hesselink, L., Rizal, D., Bjornson, E.S. "Control and observation of physical devices, equipment and processes by multiple users over computer networks"
36. 20020041564 Yoshinari, J., Tsukagoshi, T., Hirata, H., Hayashida, N., Honda, T., McDonald, M.E., Morelli, M.V., Daiber, A. J., Ghose, S., Hesselink, L., Nishimura, S., Sochava, S., "Optical information medium"
37. 20010030934 Lipson, M., Sochava, S., Hesselink, L., Cumpston, B., Mcleod, R.R., Claude, C.D., "Optical storage media and method for optical data storage via local changes in reflectivity of a format grating"

PRESENTATIONS AT SCIENTIFIC MEETINGS

INVITED AND PLENARY PRESENTATIONS AT MEETINGS AND SYMPOSIA: (92-05) 1980-1992 AVAILABLE ON REQUEST

1. Hesselink, L., "Holographic Data Storage using Photorefractives," Snowbird, Physics of Quantum Electronics, Salt Lake City, UT, Jan 7-10, 1993.
2. Hesselink, L., "Design Concepts for Photonic Devices Using Electro-Optic Materials," Optical Society of America - Optical Design for Photonics Topical Meeting, Palm Springs, March 22-24, 1993.

3. Hesselink, L., "Holographic Data Storage Implemented with Photorefractives," Intermag '93 - International Magnetism, Stockholm, April 13-16, 1993.
4. Hesselink, L., "Commercial Aspects of Holographic Data Storage," OIDA Workshop - Optical Technology Workshop, Tucson, AZ, April 27, 1993.
5. Hesselink, L., "Holographic Data Storage with Photorefractive Fibers," SPIE - International Symposium on Optical Applied Science and Engineering, San Diego, July 11, 16, 1993.
6. Hesselink, L., "Holographic Data Storage Systems," Ukrainian Academy of Sciences - Fourth Topical Conference on Photorefractive Materials, Effects and Devices, Kiev, August 11-14, 1993.
7. Hesselink, L., "Optical Signal Processing and Data Storage," AFOSR Workshop-Optical Metrology of Turbulence I, Albuquerque, NM, August 30, 1993.
8. Delmarcelle, T.; Hesselink, L.; "Visualizing Second-Order Tensor Fields with Hyperstreamlines," IEEE Computer Graphics and Applications, vol. 13, no. 4, pp. 25-33, 1993 (special issue on scientific visualization).
9. Ning, Paul; Hesselink, L.; "Fast Volume Rendering of Compressed Data," Proceedings-IEEE Visualization 1993, pages 11-18.
10. Hesselink, L.; International Conference on Optical Information Processing, "Systems and Materials Issues Concerning Holographic Data Storage in Photorefractive Crystals," St. Petersburg, Russia, August 2-7, 1993.
11. Hesselink, L., "Visualization of Vector and Tensor Datasets," University of Heidelberg, Germany, Jan 17-20, 1993
12. Hesselink, L., "Automated Analysis of Tensor Data," Siemens, Computer Vision for Computational Fluid Dynamics Data Interpretation, Princeton, NJ, March 29-20, 1993
13. Hesselink, L., "Scientific Visualization of Vector and Tensor Datasets," ONR, Germany, July 1-12, 1993
14. Hesselink, L., "Automated Analysis and Feature Extraction of Tensor Datasets," 1993 SIAM Annual Meeting, Society for Industrial and Applied Mechanics, Philadelphia, PA, July 11-16, 1993
15. Hesselink, L., "Visualization and Feature Extraction of Tensor Datasets," U.S. National Congress on Computational Mechanics, Washington, D.C., Aug 16-18, 1993
16. Hesselink, L., "Optical Photorefractive Interconnects Implemented with Photorefractive Materials," Optical Society of America - Albuquerque, NM, Sept 20-25, 1992.
17. Hesselink, L., "Holographic Data Storage," Bellcore, Redbank, N.J., November 9, 1992.
18. Hesselink, L., "Holographic Data Storage," Colorado, November 13, 1992.
19. Hesselink, L., "Holographic Data Storage Implemented with Photorefractive Media," Lockheed, Palo Alto, CA, December 4, 1992.
20. Delmarcelle, T.; Hesselink, L.; "Visualization of Second Order Tensor Fields and Matrix Data, IEEE Conference on Visualization '92, Boston, MA, October 1992.
21. Hesselink, L., "Visualization of Scientific Data," Madrid, Spain, Jan 30-Feb 4, 1992
22. Hesselink, L., "Visualization of Vector Datasets," Appleton, WI, April 12-13, 1992
23. Hesselink, L., "Visualization of Vector Datasets," Indianapolis, IN, April 22-24, 1992

24. Hesselink, L., "Scientific Visualization of Vector Datasets," International Seminar on Imaging in Transport, Athens, Greece, May 25-29, 1992
25. Hesselink, L., "Optical and Digital Processing of Scientific Datasets," Workshop on Flow Visualization-TU DELFT, Delft, the Netherlands, Aug 22-Sept 2, 1992.
26. Hesselink, L., Bashaw, M. C. and Heanue, J.; "Holographic Data Systems," Russian Academy of Sciences, Optical Memory & Neural Networks Conference, August 23-30, 1994, Moscow, Russia.
27. Hesselink, L., "Volumetric Hologram Storage," AFOSR/NC, Organic/Polymeric Photorefractive Materials Workshop, Thousand Oaks, CA July 22, 1994.
28. Hesselink, L., "Holographic Information Storage," tutorial CLEO/IQEC '94, Anaheim, CA May 8-12, 1994.
29. Hesselink, L., "Materials for Holographic Storage," Raychem, distinguished visitors lecture series, March 30, 1994.
30. Hesselink, L., "Materials for Holographic Storage," Material Science Seminar, Stanford University, March 4, 1994.
31. Hesselink, L., "Practical Holography," IS&T/SPIE, San Jose, CA, February 7, 1994.
32. Hesselink, L., "Recent Advances in Materials for Optical Data Storage," OE/LASE '94, Los Angeles, CA January 26-28, 1994.
33. Hesselink, L., "Holographic Data Storage Systems Implemented with Photorefractive Materials," Leos '93 Annual Meeting, November 18, 1993.
34. Hesselink, L., "Holographic Data Storage," Optical Society of America, Toronto, Canada, October 3-8, 1993.
35. Hesselink, L., "Optical Signal Processing and Data Storage," AFOSR Workshop-Optical Metrology of Turbulence I, Albuquerque, NM, August 30, 1993.
36. Hesselink, L.; International Conference on Optical Information Processing, "Systems and Materials Issues Concerning Holographic Data Storage in Photorefractive Crystals," St. Petersburg, Russia, August 2-7, 1993.
37. Hesselink, L., "Automated Analysis and Feature Extraction of Tensor Datasets," 1993 SIAM Annual Meeting, Society for Industrial and Applied Mechanics, Philadelphia, PA, July 11-16, 1993.
38. Hesselink, L., "Scientific Visualization of Vector and Tensor Datasets," ONR, Germany, July 1-12, 1993.
39. Hesselink, L., "Holographic Data Storage with Photorefractive Fibers," SPIE - International Symposium on Optical Applied Science and Engineering, San Diego, July 11, 16, 1993.
40. Hesselink, L., "Commercial Aspects of Holographic Data Storage," OIDA Workshop - Optical Technology Workshop, Tucson, AZ, April 27, 1993.
41. Hesselink, L., "Automated Analysis of Tensor Data," Siemens, Computer Vision for Computational Fluid Dynamics Data Interpretation, Princeton, NJ, March 29-20, 1993.
42. Hesselink, L., "Design Concepts for Photonic Devices Using Electro-Optic Materials," Optical Society of America - Optical Design for Photonics Topical Meeting, Palm Springs, March 22-24, 1993.
43. Hesselink, L., "Visualization of Vector and Tensor Datasets," University of Heidelberg, Germany, Jan 17-20, 1993.

44. Hesselink, L., "Holographic Data Storage using Photorefractives," Snowbird, Physics of Quantum Electronics, Salt Lake City, UT, Jan 7-10, 1993.
45. Hesselink, L., "Holographic Data Storage Systems Implemented with Photorefractive Materials," Research Trends in Nonlinear and Quantum Optics, La Jolla, CA November 21-23, 1993.
46. Hesselink, L., "Holographic Data Storage Systems Implemented with Photorefractive Materials," Leos '93 Annual Meeting, November 18, 1993.
47. Hesselink, L., "Holographic Data Storage," Optical Society of America, Toronto, Canada, October 3-8, 1993.
48. Hesselink, L., "Visualization and Feature Extraction of Tensor Datasets," U.S. National Congress on Computational Mechanics, Washington, D.C., Aug 16-18, 1993.
49. Hesselink, L., "Holographic Data Storage Systems," Ukranian Academy of Sciences - Fourth Topical Conference on Photorefractive Materials, Effects and Devices, Kiev, August 11-14, 1993.
50. Hesselink, L., "Holographic Data Storage Implemented with Photorefractives," Intermag '93 - International Magnetism, Stockholm, April 13-16, 1993.
51. Delmarcelle, T.; Hesselink, L.; "Visualizing Second-Order Tensor Fields with Hyperstreamlines," IEEE Computer Graphics and Applications, vol. 13, no. 4, pp. 25-33, 1993 (special issue on scientific visualization).
52. Ning, Paul; Hesselink, L.; "Fast Volume Rendering of Compressed Data," Proceedings-IEEE Visualization 1993, pages 11-18.
53. Hesselink, L., Bashaw, M. C. and Heanue, J.; "Holographic Data Systems," Russian Academy of Sciences, Optical Memory & Neural Networks Conference, August 23-30, 1994, Moscow, Russia.
54. Hesselink, L., "Visualization of Vector and Tensor Datasets," ICASE Nasa-Langley, Hampton, VA, August 8-9, 1994.
55. Hesselink, Lambertus, "Materials for Holographic Data Storage," OSA Annual Meeting, Dallas, TX, October 1994.
56. Hesselink, Lambertus, "Holographic Data Storage." (lecture) NASA-Goddard, Washington, DC, October 1994.
57. Hesselink, L., Heanue, J.F., and Bashaw, M.C., "A digital holographic data storage system," 1994 Japan-U.S. Workshop on Functional Fronts in Advanced Ceramics (Boundaries and Defects), sponsored by the Science and Technology Agency (Japan) and the National Institute for Research in Inorganic Materials (Japan), Tsukuba, Japan, December 6-8, 1994, Paper PL4.
58. Bashaw, M.C., Heanue, J.F., and Hesselink, L., "Photorefractive Material Requirements for Holographic Data Storage," 1994 Japan-U.S. Workshop on Functional Fronts in Advanced Ceramics (Boundaries and Defects), sponsored by the Science and Technology Agency (Japan) and the National Institute for Research in Inorganic Materials (Japan), Tsukuba, Japan, December 6-8, 1994, Paper 5B1.
59. Bashaw, M.C., Heanue, J.F., and Hesselink, L., "Critical issues in volume holographic data storage," Fourth Meeting of the Topical Group on Phase Conjugation and Wave Mixing, Optical Society of Japan, Kobe, Japan, December 9, 1994.
60. Hesselink, L., "Application of Data Compression to 3-D Scalar field Visualization" and "Visualization of Vector and Tensor Datasets," Institute of Italian National Research Council, Workshop: Multidimensional Fields, Rome, Italy, July 6-9, 1994.
61. Hesselink, L., "Visualization of Tensor and Data Sensor," International Conference and Research Center for Computer Science in Schloss Dagstuhl, Germany, May 23-27, 1994.

62. Hesselink, L. and Urich, C.; "Submicron Defect in Periodic Structures Using Photorefractive Holography," Optical Meeting - Frontiers in Information Optics, Kyoto, Japan, April 4-13, 1994.
63. Hesselink, L., "Materials for Holographic Storage," Raychem, distinguished visitors lecture series, March 30, 1994.
64. Hesselink, L., "Practical Holography," IS&T/SPIE, San Jose, CA, February 7, 1994.
65. Hesselink, L., "Recent Advances in Materials for Optical Data Storage," OE/LASE '94, Los Angeles, CA January 26-28, 1994.
66. Hesselink, Lambertus, "Storage & Retrieval of Digital Data in a Volume Holographic Medium," Varian, Palo Alto, CA January 1995.
67. Hesselink, Lambertus, "Critical Issues for Digital Volume Holographic Storage," IS&T/SPIE Photonics West '95, San Jose, CA, February 1995.
68. Hesselink, Lambertus, "Holographic Storage & Retrieval of Digital Data," OSA, Salt Lake City, UT, March 1995.
69. Hesselink, Lambertus, "Holographic Storage Materials & Systems," American Physical Society, San Jose, CA, March 1995.
70. Heanue, J. F., Bashaw, M.C., and Hesselink, L., "Volume holographic storage and retrieval of digital information," presented at the Conference on Lasers and Electro-Optics, Baltimore, May 22-26, 1995, Paper CMF5.
71. Hesselink, Lambertus, "Materials for Digital Holographic Data Storage," Second Mediterranean School & Topical Meeting, Cetraro, Italy, May 1995.
72. Hesselink, Lambertus, "Holographic Data Storage Systems and Photorefractive Materials," OSA Topical Meet, Photorefractive Materials, Effects & Devices, Estes Park, CO, June 1995.
73. Hesselink, Lambertus, "Holographic Systems" National Media Labs, Holographic Storage Review, Boulder, CO, June 1995.
74. Hesselink, Lambertus, "Optical Signal Processing & Holography," Gordon Research Conference, Optical Information Processing & Holography, Boston, MA, June 1995.
75. Hesselink, Lambertus, "Volume Holographic Storage & Retrieval of Digital Data," International Symposium on Optical Memory '95, Ishikawa, Japan, August 1995.
76. Hesselink, L.; Heanue, J. F.; Bashaw, M. C.; "Review of system design issues of digital holographic memories," 1995 Annual Meeting on the Optical Society of America, Portland, OR, September 10-15, 1995.
77. Sixth International Symposium on Computational Fluid Dynamics, The Japanese Society of Computational Fluid Dynamics, invited paper "Future Extraction from CFD Solutions," Lake Tahoe, CA, September 1995.
78. Hesselink, L.; Heanue, J. F.; Bashaw, M. C.; "Digital holographic data storage devices," High-Density Data Recording and Retrieval Technologies, Philadelphia, October 23-24, 1995.
79. SPIE-Photonics East '95, International Symposium on Information, Communications and Computer Technology, Applications and Systems, "Digital Volume Holograph Data Storage Devices," Philadelphia, PA, October 1995.
80. Hesselink, L., "Digital Volume Holographic Data Storage Devices," SPIE Photonics East '95, Philadelphia, PA, October 22-13, 1995.

81. Hesselink, L., "Optical Data Storage Systems," IEEE/LEOS (Lasers and Electro-Optics Society), San Francisco, CA November 1, 1995.
82. Tudelft, invited doctoral committee, "Selective Visualization Techniques for Curvilinear Grids," The Netherlands, December 1995.
83. Hesselink, L.; "Holographic Storage & Retrieval of Digital Data" OSA (OC '95), Spatial Light Modulators & Application Topical Meeting, Salt Lake City, March 1995.
84. Hesselink, L.; "Holographic Storage Materials & Systems," American Physical Society, San Jose, CA, March 1995.
85. Hesselink, L.; "Materials for Digital Holographic Data Storage," NOMA, 2nd Mediterranean School & Topical Meeting, Milan, Italy, May 1995.
86. Hesselink, L.; "Topology of Tensor Fields," Graphicon '95, 5th International Conference on Graphics & Visualization, St. Petersburg, July 1995.
87. Hesselink, L.; "Review of Systems Design Issues of Digital Holographic Memories," OSA '95 Topical Meet, Photosensitivity & Quadratic Nonlinearity in Glass Waveguides: Fundamentals and Applications, Portland, OR, September 1995.
88. Hesselink, L.; "Digital Volume Holographic Data Storage Devices," SPIE-Photonics East '95, International Symposium on Information, Communications and Computer Technology Applications and Systems, Philadelphia, PA, October 1995.
89. ICASE workshop, "Visualizing Time-Varying Data, organizer, Williamsburg, VA, September 1995.
90. IEEE Computer Society, IEEE Visualization '95, tutorial "Visualization and Topology of Vector-Tensor Fields," Atlanta, GA October 1995.
91. IS&T SPIE, Symposium on Electronic Imaging and Technology-Photonics West '96, member organizing program committee, Practical Holography X, San Jose, January 1996.
92. Hesselink, L., "Holographic Data Storage System," International Symposium on Holographic Memories '96, Greece, May 12-15, 1996.
93. International Symposium on Holographic Memories '96, invited presenter/program committee, " Holographic Data Storage System," May 1996, Greece
94. Hesselink, L., Short Course: Holographic Data Storage, CLEO/QELS, Anaheim, CA June 2-5, 1996.
95. Downing, E. A.; Hesselink, L.; Ralston, John; Macfarlane, Roger; "A Three-Color, Solid-State, Three-Dimensional Display", submitted Science Paper, June 1996.
96. Downing, E. A.; Hesselink, L.; "A Performance Comparison of Fluoride Glasses, " 10th International Symposium on Non-Oxide Glasses, Corning, New York, June 19-22, 1996,
97. Akella, A.; Downing, E. A.; Hesselink, L.; "New Fluoroindate Glass Compositions, " 10th International Symposium on Non-Oxide Glasses, Corning, New York, June 19-22, 1996,
98. CLEO/QELS, invited short course: Holographic Data Storage, Anaheim, CA, June 1996.
99. Sincerbox, G. T.; Hesselink, L.; "Removing the materials bottleneck in holographic storage," Non-Linear Optics Conference, Maui, Hawaii, July 8-12, 1996.

100. Hesselink, L., "Fundamental Materials & Devices Issues for Digital Holographic Data Storage," Non-Linear Optics Conference, Maui, Hawaii, July 8-12, 1996.
101. NLO Meet, "Fundamental Materials and Devices Issues for Digital Holographic Data Storage," and "Digital Holographic Data Storage Systems," Hawaii, July 1996.
102. Hesselink, L., "Holographic Digital Data Storage System," Optical Society of Korea International Committee for Optics (invited plenary lecture and chair), Taejon, Korea, August 19-23, 1996.
103. Hesselink, L., "Photorefractive Optical Memories," 3rd ECAP-Polar Dielectrics, plenary lecture, Bled, Slovenia, August 26-29, 1996.
104. ICO XVII 1996 Optics for Science and New Technology, plenary lecture and chair, "Holographic Digital Data Storage System," Taejon, Korea, August 1996.
105. 3rd ECAP-Polar Dielectrics, J. Stephen Institute, invited plenary lecture, "Photorefractive Optical Memories," Bled, Slovenia, August 1996.
106. OSA Annual Meetings, ILS-XCII Optics and Imaging Center, "Symposium on Large Scale Digital Holographic Memories," Rochester, NY, October 1996.
107. OSA Annual Meetings, ILS-XCII Optics and Imaging Center, paper, "Materials and Systems Issues for Digital Holographic Data Storage," Rochester, NY, October 1996.
108. Photonics China, SPIE's International Symposium on Lasers, Optoelectronics and Microphotonics, invited talk "Digital Holographic Data Storage," L. Hesselink, M. C. Bashaw, Stanford University, J. F. Heanue, A. J. Daiber, Optitek, Beijing, China, November 1996.
109. Photonics China, SPIE's International Symposium on Lasers, Optoelectronics and Microphotonics, invited paper, "Digital Holographic Data Storage, Beijing, China, November 1996.
110. Physics of Quantum Electronics-26th Winter Colloquium, invited talk, "Holographic Memory Systems for Digital Video Applications," Snowbird, UT, January 1997.
111. Applied Science Seminar-LLNL, invited talk, "The Encyclopedia Britannica inside the head of a pin," Livermore, CA, February 1997.
112. Physics of Quantum Electronics-26th Winter Colloquium, invited paper, "Holographic Memory Systems for Digital Video Applications," Snowbird, UT, January 1997.
113. Applied Science Seminar-LLNL, invited paper, "The Encyclopedia Britannica inside the head of a pin," Livermore, CA, February 1997.
114. University of Oregon Colloquium, invited talk, "Review of holographic data storage," Eugene, OR, April 1997.
115. Baetjer Seminar, invited Baetjer lecturer, "The Encyclopedia Britannica inside the head of a pin," Princeton University, New Jersey, April 1997.
116. Baetjer Seminar, invited Baetjer lecturer, "Tensor datasets: how do we analyze and visualize them," Princeton University, New Jersey, April 1997.
117. University of Oregon Colloquium, invited paper, "Review of holographic data storage," Eugene, OR, April 1997.
118. Lasers and Electro-Optics/Quantum Electronics & Laser Science Conference (CLEO/QELS '97), short course, "Holographic Storage," Baltimore, MD, May 1997.

119. Sony Corporation, invited talk, "The Encyclopedia Britannica inside the head of a pin," Tokyo, Japan, June 6, 1997.
120. Hitachi CRL, invited talk, "Holographic digital data storage system, Tokyo, Japan, June 6, 1997.
121. Waseda International Symposium & 6th Topical Meeting of Photorefractive Materials, invited talk, "The Encyclopedia Britannica inside the head of a pin?", Tokyo and Chiba, Japan, June 1997.
122. Waseda International Symposium on Phase Conjugation & Wave Mixing (Waseda Symposium), invited talk, "Recent Advances in Digital Holographic Data Storage," Waseda University, Tokyo, Japan, June 8-10, 1997.
123. Waseda International Symposium on Phase Conjugation & Wave Mixing (Waseda Symposium), invited talk, "Radial inhomogeneities in a-axis grown strontium barium niobate fibers prepared by laser heated pedestal growth technique in different conditions," Waseda University, Tokyo, Japan, June 8-10, 1997.
124. 1997 Topical Meeting on Photorefractive Materials, Effects and Devices (PR '97), invited talk, "Phase-instabilities, scattering centers in oxide crystals addressed to high density holographic data storage systems," Nihon Aerobics Center, Chiba, Japan, June 11-13, 1997.
125. AIAA Computational Fluid Dynamics Conference, Scientific Visualization, invited paper, "Visualization of 3-D Tensor Fields," Snowmass, CO, June 1997.
126. 1997 Topical Meeting on Photorefractive Materials, Effects and Devices (PR '97), invited paper, "Phase-instabilities, scattering centers in oxide crystals addressed to high density holographic data storage systems," Nihon Aerobics Center, Chiba, Japan, June 11-13, 1997.
127. Lasers & Electro-Optics/International Quantum Electronics Conference, Short Course #108, "Holographic Data Storage", San Francisco, CA May 5-7, 1998.
128. Presentation at 25th International Conference on Computer Graphics and Interactive Technique Conference, July 19-25, 1998, Orlando, Florida, "Vector Field Comparisons Using Earth Mover's Distance," by Yingmei, Rajesh Batra, and Lambertus Hesselink.
129. Presentation at International Symposium on Optical Science, Engineering and Instrumentation, SPIE's 43rd Annual Meeting, July 19-24, 1998, "Precompensated two-color digital holographic storage," by Eric Bjornson and Lambertus Hesselink.
130. Presentation at SPIE conference, San Diego, California, July 22-24, 1998, "Properties of compositional volume grating formation in photoactive species induced polymerization processes" by Loukas Paraschis, Lambertus Hesselink and Annapoorna Akella.
131. Presentation at SPIE conference, San Diego, California, July 22-24, 1998, "Statistical analysis of photopolymer volume grating fluctuations in a holographic digital data storage system" by Loukas Paraschis and Lambertus Hesselink.
132. Presentation at Nonlinear Optics '98 Materials, Fundamentals and Applications Topical Meeting, August 9-14, 1998, Princeville, Kauai, Hawaii, "Statistical Analysis of Polymer Grating Distortions in Volume Holographic Digital Storage," by L. Paraschis and L. Hesselink.
133. Presentation at Nonlinear Optics '98 Materials, Fundamentals and Applications Topical Meeting, August 9-14, 1998, Princeville, Kauai, Hawaii, "Properties of Compositional Volume Grating Recording in Photopolymers," by L. Paraschis and L. Hesselink.
134. Presentation at Nonlinear Optics '98 Materials, Fundamentals and Applications Topical Meeting, Kauai, Hawaii, August 10-14, 1998, Cat. No., 98CH36244, p. 251-3 (conference paper), "Fundamental issues related to digital holographic data storage," by Lambertus Hesselink and Loukas Paraschis.

135. Invited talk at Nonlinear Optics '98, Materials, Fundamentals and Applications Topical Meeting, August 9-14, 1998, Princeville, Kauai, Hawaii, "Fundamental Issues Related to Digital Holograph Data Storage," by Lambertus Hesselink.
136. Presentation at Photonics China '98 Conference, Beijing, China, September 16-17, 1998, invited paper, "Fundamental issues related to digital holographic data issues," by Lambertus Hesselink.
137. Presentation at International Symposium on Optical Memory '98, Tsukuba, Japan, October 20-22, 1998, invited talk, "Non-Volatile Digital Holographic Memories," by Lambertus Hesselink.
138. Invited Lecture at Silver Jubilee Symposium of the Optical Society of India, Optics and Opto-Electronics Conference, Irde Dehradum, India, "High performance digital holographic optical memories," by Lambertus Hesselink, December 9-12, 1998.
139. Presentation at the International Photonics Conference, Symposium on Photorefractive Holography and Applications, Taipei, Taiwan, December 16-18, 1998, invited talk, "A compact digital holographic storage system: design and performance," by Lambertus Hesselink.
140. Invited Lecture at Silver Jubilee Symposium of the Optical Society of India, Optics and Opto-Electronics Conference, Irde Dehradum, India, "High performance digital holographic optical memories," by Lambertus Hesselink, December 9-12, 1998.
141. International Workshop on Holographic Data Storage, Stanford Organizer, Nice, France, March 8-11, 1999.
142. Presentation at the SCCE II International Workshop "Scientific Computing in Chemical Engineering II," invited presentation, "Topology Based Comparison Technique for Vector Fields Using Earth Mover's Distance," by Lambertus Hesselink, Hamburg, Germany, May 2-28, 1999.
143. Presentation at the Distinguished Lecturer's Series, Livermore, CA June 1999, invited talk "Holographic Data Storage," by Lambertus Hesselink
144. Presentation at the Xerox PARC Forum, June 10, 1999, Palo Alto, invited talk "Volumetric High Density Data Storage," by Lambertus Hesselink
145. Presentation at the NSIC Annual Meeting, June 22, 1999, Monterey, CA , Three Dimensional Storage: "1 Gbit Holographic Data Storage System Demonstrator."
146. Presentation at the ISOM/ODS '99 Conference, "Physical Properties of volume holographic recording utilizing, photoinitiated polymerization for nonvolatile digital data storage," Paraschis, Loukas; Sugiyama, Yasuyuki; and Hesselink, Lambertus, July 11-15, 1999, Koloa, Hawaii.
147. Presentation at the SPIE, IDEMA/NIST "Recent Advances in Metrology, Characterization and Standards For Optical Digital Data Disks" Conference, Denver, CO, July 18-13, 1999, invited paper "High density Optical Data Storage," by Lambertus Hesselink.
148. Presentation at the ETOP '99, 6th International Meeting on Education and Training in Optics and Photonics Workshop, invited, "Cyberlab," Cancun, Mexico, July 28-31, 1999.
149. Presentation at the ICO VIII, 18th congress of the International Committee for Optics, "Physical properties of photopolymer recording for on-volatile volume holographic storage," Paraschis, L., Sugiyama, Y., and Hesselink, L., San Francisco, CA August 2-6, 1999.
150. Presentation at the IDEMA/DISKCON Conference, invited paper "Fundamental Aspects of Digital Holographic Data Storage, San Jose, CA," San Jose, CA September 21, 1999.
151. Short Course, invited OSA Annual Meet, "Holographic Storage," Santa Clara, CA, September 26, 1999.

152. Presentation at the Photonik Symposium/Volkswagen-Stiftung, invited paper, "High speed digital holographic data storage Demonstrator," Duisburg, Germany, October 1, 1999.
153. Presentation at the Leos '99 Annual Meeting, invited paper, "Optical Data Storage Systems," San Francisco, CA, November 9, 1999.
154. Short Course, OSA Annual Meet, invited, "Holographic Storage," September 26, Santa Clara, CA.
155. Presentation Gerhard-Mercator-Universitat-GH-Duisburg Volkswagen-Stiftung, Photonik Symposium/Volkswagen-Stiftung, invited paper, "High Speed Digital Holographic Data Storage Demonstration," Duisburg, Germany, October 1, 1999.
156. Presentation at the LEOS '99 Annual Meeting, invited paper, "Optical Data Storage Systems", November 9, 1999, San Francisco, CA.
157. National Instruments Week, Education Day, "Cyberlab, A New Paradigm in Distance Learning," Bjornson, Eric; Rizal, Dharmarus, Hesselink, Lambertus, August 19, 1999, Austin, TX.
158. WMC 2000, Society for Computer Simulation International. Invited, "Cyberlab: A New Paradigm in Distant Learning," San Diego, CA January 26, 2000.
159. NSF Workshop: Learning from the Net: The Leading Edge in Internet-Based, invited talk, "Cyberlab: A New Paradigm in Distant Learning," Stanford University, Stanford, CA, February 11, 2000.
160. APS March Meeting 2000, invited talk "From the Classroom to the Boardroom," Minneapolis, MN, April 19-21, 2000.
161. CLEO QELS 2000 Conference on Lasers and Electro-Optics, Invited Short Course, "Holographic Data Storage," San Francisco, Moscone Center, May 8, 2000.
162. Optical Data Storage Conference IEEE/OSA/SPIE, invited paper/talk, "3DR Technology," Vancouver, BC, Canada, May 14-18, 2000.
163. Optical Internet, The Next Generation, invited talk, "High Density Data Storage Technologies," Stanford Campus, Stanford, CA, May 16, 2000.
164. SSGRR-2000, invited presentation, "Cyberlab: A New Paradigm for Internet Learning," L, Hesselink, E. Bjornson and D. Rizal, L'Aquila, Italy, July 31-August 6, 2000.
165. University of Latvia, ECAPD-5 Conference, invited Plenary/presentation, "Ultra High density Data Storage" by L. Hesselink, Jurmala, Latvia, August 27-30, 2000.
166. OSA Annual Meeting & Exhibit 2000, "Video Demonstration of high data rate holographic disk data storage system," William Phillips, Sergei Orlov, Eric Bjornson, Padma Sundaram, Lambertus Hesselink, Stanford University; Robert Okas, Siros Technologies, Inc., Providence, RI, October 2000.
167. OSA Annual Meeting & Exhibit 2000, "10 gigabit/second sustained optical data transfer rate from a holographic disk digital data storage system," Sergei Orlov, William Phillips, Eric Bjornson, Lambertus Hesselink, Stanford University; and Robert Okas, Siros Technologies, Inc., Providence, RI, October 2000.
168. MORIS/APDSC 2000, invited talk, "Ultra high density data storage, Nagoya, Japan, October 30 to November 2, 2000.
169. Ultra-High-Density Data Storage, Hesselink, L., Communications of the ACM: November 2000, v. 43, no. 11, p. 33-36, Stanford University, Palo Alto, CA.
170. IPC 2000. International Photonics Conference, invited talk, "Ultra-high capacity and performance optical

171. Data storage systems” L. Hesselink, S. Orlov and W. Phillips, Taiwan, December 12-15, 2000.
172. CLEO 2000 Conference, “High Transfer rate (1 Gbit/sec) high-capacity holographic disk digital storage system,” by S. S. Orlov, E. Bjornson, W. Phillips, Y. Takashima, X. Li, and L. Hesselink, Stanford University, San Francisco, California, May 7-12, 2000.
173. SSGRR-2000 Conference, “Cyberlab: A New Paradigm for Internet Learning,” by Lambertus Hesselink, E. Bjornson and Dharmarus Rizal, L’Aquila, Italy, July 31-August 6, 2000.
174. SPIE/Photonics West, SPIE Conference on Visual Data Exploration & Analysis, invited paper, “Visualization and vector and tensor fields and quantitative comparisons,” D. A. Waldman, E. A. Cetin, R. T. Ingwall, R. A. Minns, Aprilis, Inc.; S. Orlov, W. Phillips, L. Hesselink, Stanford University, January 23, 2001, San Jose, CA
175. SPIE/Photonics West, SPIE Conference on Visual Data Exploration & Analysis, invited paper, “High-performance data storage in a rotating disk of Aprilis CROP recording medium,” D. A. Waldman, E. A. Cetin, R. T. Ingwall, R. A. Minns, Aprilis, Inc.; S. Orlov, W. Phillips, L. Hesselink, Stanford University, January 23, 2001, San Jose, CA
176. European Media Laboratory, invited paper “Internet Assisted Laboratories,” Heidelberg, Germany, January 2001.
177. CRISM Review, Future Technologies: Investigating New Optical Storage Technology AuthentiCorp and Advanced Applications – ReplTech, invited talk, “10 Gbit/sec Holographic Data Storage Demonstration,” February 20, 2001, Los Angeles, CA.
178. ODS 2001, Optical Data Storage Conference, invited talk, Nano-aperture with ultra-high power throughput for VSAL,” Xiaolei Shi, Lambertus Hesselink, Stanford University, Robert L. Thornton, Siros Technologies, Inc., April 24, 2001, Santa Fe, New Mexico .
179. University of San Francisco, invited talk “Optical Data Storage,” San Francisco, CA, April 16, 2001.
180. OSA 2001, "Nano-aperture with Power Throughput or Near Field Optical Applications", Xiaolei Shi, Robert L. Thornton, Lambertus Hesselink, October 14-18, 2001, Long Beach, CA
181. ISOM 2001, "Mechanisms for Enhancing Power Throughput from Nano-apertures for Near Field Optical Data Storage", Xiaolei Shi and Lambertus Hesselink, October 10-16, 2001, Taipei, Taiwan.
182. Associative recall in a volume holographic storage system based on phase-code multiplexing, Berger, G; Denz, C; Orlov, SS; Phillips, B, Hesselink, L.; Applied Physics B: Lasers and Optics, December 2001; v. 73, no. 8, p. 839-845.
183. Distance Education Colloquy, invited talk, “ Remotely Controlled Laboratories,” San Diego, CA January 6-8, 2002
184. SPRC Annual Meeting, Joseph Matteo, Xiaolei Shi, Yin Yuen, Lambertus Hesselink, “Optical nano-tweezer using sub-wavelength “C”-aperture”, Stanford Photonics Research Center annual meeting , Stanford University, Palo Alto, CA, September 16-18, 2002.
185. ICOLA’02 Conference, Lambertus Hesselink, Xiaolei Shi, “Ultra-high Power Transmission Through a Single Nano-Aperture”, International Conference on Opto-electronics and Laser Applications (ICOLA), Jakarta, Indonesia, October 2-3, 2002 (Invited).
186. SSGRR 2002W International Conference on Advances in Infrastructure for e-Business, e-Education, e-Science and e-Medicine on the Internet, invited plenary talk: “The Next Wave of Internet Applications: Seamless Integration of Devices, Users and Data,” L. Hesselink, January 22-27, 2002, L’Agila, Italy.

187. USAF: Workshop "World Wide Web," Project Kaleidoscope, invited talk, "Web-assisted Inter-institutional Collaborations for Teaching and Research, Colorado Springs, CO, February 8-10, 2002.
188. IDEMA 2002, DISKCON, International Exhibition for Disk Drive and Media Technology, invited paper, "Recent Advances in Holographic Data Storage: Pre-cursor for Commercialization," Lambertus Hesselink and Sergei Orlov, and invited talk: "Holographic Storage Not a Dream Anymore," L. Hesselink, April 11-12, 2002, Tokyo, Japan.
189. Hesselink, L., and Orlov, S., "Recent Advances in Holographic Data Storage: Pre-Cursor for Commercialization," proceedings ISOM 2002.
190. Hesselink, L., "Internet-Based Remotely Controlled Laboratories," proceedings DMS 2002.
191. Fe, Y., Bonitou, D., Schuwelywk, A., Hesselink, L., Sturman, B., and Odoulov, S., "Coupling of Orthogonally Polarized Waves and Vectorial Coherent Oscillation in Periodically Poled LiNbO₃," J.A.P., May 2002.
192. CLEO/QELS 2002 Conference on Lasers and Electro-Optics, "High data rate (10 Gbit/sec) demonstration in holographic disk digital data storage system," Sergei S. Orlov, William Phillips, Eric Bjornson, Lambertus Hesselink, and Okas, R., Long Beach, CA, May 21-23, 2002.
193. Schott Glass, Workshop on Glass and Photonics Revolution, invited paper, "Materials requirements for dense optical storage," Bad Soden, Germany, May 28-29, 2002.
194. IUMRS-ICEM2002 Conference, invited paper, "Photorefractive Holographic Storage," Xi'an, China, June 10-14, 2002.
195. DMS-2002 conference, keynote speaker: Distance Learning Research, Hotel Sofitel, San Francisco, CA September 26-28, 2002.
196. SPRC Annual Meeting, Xiaolei Shi, Robert Thornton, Lambertus Hesselink, "Ultra-high optical transmission through a single "C"-shaped nano-aperture", Stanford Photonics Research Center annual meeting, Palo Alto, CA, September 16-18, 2002.
197. ICOLA '02 International Conference on Opto-electrotechniques and Laser Applications, invited talk: "Ultra-high Power Transmission Through a Single Nano-Aperture," Hesselink, L; Shi, Xiaolei; Matteo, Joe; Sun, Lying,, Jakarta, Indonesia, September 29-October 5, 2002.
198. Magnetics & Magnetic Devices Lab, Toyohashi University of Technology, invited lecture: "Selected Topics in Electrical and Electronic Engineering I", and "Advanced Topics in Electrical and Electronic Engineering I," Tokyo, Japan, October 6-7, 2002
199. Magnetics and Magnetic Devices Lab, Toyohashi University of Technology, invited lecture "Selected Topics in Electrical and Electronic Engineering I," and "Advanced Topics in Electrical and Electronic Engineering I," Lambertus Hesselink, Tokyo, Japan, October 6-7, 2002 (invited).
200. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink,, "Submicron Ferroelectric Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", *Materials Research Society Fall Meeting*, Boston, MA, 2003.
201. J. W. Son, S. Orlov, W. Phillips, and L. Hesselink,, "Parametric studies on Suppressing Secondary Phases in Lithium Niobate Thin Films deposited by Pulsed Laser Deposition", *Materials Research Society Fall Meeting*, Boston, MA, 2003.
202. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink,, "Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", *Laser Science XIX, OSA Annual Meeting*, Tucson, AZ, 2003.

203. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Direct-write e-beam domain engineering in LiNbO_3 thin films grown by liquid phase epitaxy", *Stanford Photonics Research Center Annual Meeting*, 2003.
204. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Domain engineering in LiNbO_3 thin films grown by liquid phase epitaxy," Materials Research Society Symposium, Proceedings 2003, v. 784, p 523-528, *Ferroelectric Thin Films XII*, December 1-14, 2003, Boston, MA
205. SPIE/Photonics West Conference, "Ultra-high performance optical memories," Lambertus Hesselink, San Francisco, CA January 25-31, 2003 (invited).
206. Applied Physics Seminar, Stanford University "Ultra-high Light Transmission Through a Single C-shaped Nano-Aperture," Lambertus Hesselink, March 3, 2003, Stanford University, Stanford, CA.
207. Toyohashi University of Technology, guest speaker COE project, March 7-14, 2003, Symposium Hiotel Nikko, Toyohashi, Japan.
208. OSA Topical Meeting, Optical Data Storage Conference, co-presider, "Three-D Storage," Lambertus Hesselink, May 11-14, 2003, Vancouver, Canada
209. A new dynamic bandwidth allocation protocol with quality of service in Ethernet-based passive optical networks, An, Fu-T.; Hsueh, Yu-L.; Kim, KS; White, IM, Kazovsky, LG, Opt. Commun. Res. Lab., Stanford University, CA, Wireless and Optical Communication (WOC), 2-4 July 2003, Banff, Canada, p. 165-9.
210. IASTED WOC 2003, Wireless and Optical Communications Conference, Conference Chair, July 14-16, 2003, Banff, Alberta, Canada.
211. OSA ETOP 2003 Meeting, invited talk "Internet Assisted Laboratories: Design, Educational Use, and Pedagogical Evaluation," Lambertus Hesselink, October 6-8, 2003, Tucson, AZ.
212. APNF-04 Conference, invited talk, Hesselink, L.; Matteo Joe; Leen, Brian; Yuen, Yin; Sun, Liying, "Optical Tweezers Using Highly Efficient Sub-wavelength C-shaped Apertures," Lambertus Hesselink, October 13-17, 2003, Taipei, Taiwan
213. CRDF Conference, Kiev, October 18-22, 2003.
214. Denz, C., Beger, G., Muller, K. O., Tschudy, T., Orlov, S., Phillips, W., and Hesselink, L., "Content Addressable Data Storage in Holographic Memories Based on Phase-Coded Multiplexing,"
215. Dubois, M., Shi, Xiaolei, Lawrence, B., Tian, P., Boden, E., Chan, K. P., Nielsen, M. and Hesselink, L., "Characterization of a Preliminary Narrow-Band Absorption Material for Holographic Data Storage, ODS Meeting, 2004.
216. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "~ 200 nm Periodic Domain Structure Fabricated in Liquid Phase Epitaxy LiNbO_3 Thin Films by Direct-Write E-Beam", *Stanford Photonics Research Center Annual Meeting*, 2004.
217. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Submicron Ferroelectric Domain engineering in LiNbO_3 thin films grown by liquid phase epitaxy", *Ferroelectric Thin Films XII*, 2003 MRS Fall Meeting Proceeding Vol. 784, C 10.8., 2004.
218. J. W. Son, S. Orlov, W. Phillips, and L. Hesselink, "Parametric studies on Suppressing Secondary Phases in Lithium Niobate Thin Films deposited by Pulsed Laser Deposition", *Ferroelectric Thin Films XII*, 2003 MRS Fall Meeting Proceeding Vol. 784, C 11.24., 2004.

219. Son, Ji-Won; Yuen, Yin; Orlov, Sergei S.; Phillips, William, Galambos, Ludwig; Shur V. Ya; Hesselink, Lambertus, paper "Direct-Write e-Beam Periodically Polled ~400 nm Domains in Lithium Niobate Thin Films Grown by Liquid Phase Epitaxy," Ukrainian Journal of Physics, Volume 49, No. 4, pages 382-387, April 2004.
220. Shi, Xiaolei, Hesselink, Lambertus, "Design of a C aperture to achieve $\lambda/10$ resolution and resonant transmission, J. Opt. Soc. Am. B, Vol 21, No. 7, July 2004.
221. Yin, Xiaobo and Hesselink, Lambertus, "Weak Value and Resonance Enhanced Weak Value: A revisit of Total Internal Reflections," accepted for publication Applied Physics Letters, June 2004.
222. Hesselink, Lambertus, Sun, Liying; invited paper "Pointing Vector Topologies and Applications of C-Shaped Nano-Apertures," ICO '04, Tokyo, Japan, July 2004.
223. Hesselink, Lambertus, "Internet assisted laboratories," International Symposium, Remote Engineering and Virtual Instrumentation, September 28-29, 2004, Villach, Austria.
224. Hesselink, Lambertus; Leen, Brian; Matteo, Joe; Sun, Liying; Yuen, Yin, "Ultra-high density data storage." LEOS 2004, November 11-17, 2004, Puerto Rico.
225. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Direct-write E-beam Sub-Micron Domain Engineering in Lithium Niobate Thin Films grown by Liquid Phase Epitaxy", 2005 SPIE Photonics West, January 2005 (accepted).
226. Hesselink, Lambertus, Matteo, Joe; Yuen, Yin; Leen, Brian; Sun, Liying, paper "Nano-Photonic Components for Network Applications, KEIO, February 2005.
227. Dubois, M., Shi, Xiaolei, Lawrence, B., Tian, P., Boden, E., Chan, K. P., Nielsen, M. and Hesselink, L., paper, "Characterization of a Preliminary Narrow-Band Absorption Material for Holographic Data Storage, February 2005.
228. Ji-Won Son and L. Hesselink, "Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam Techniques", Plenary Talk, 10th Int. Conf. on photorefractive effects, materials and devices, Hainan, P. R. China, July 2005.
229. Ji-Won Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", 10th Int. Conf. on photorefractive effects, materials and devices, Hainan, P. R. China, July 2005.
230. Ji-Won Son, S. Orlov, W. Phillips, and L. Hesselink, "Pulsed laser deposition of single phase LiNbO₃ thin film waveguides", International Conference on Electroceramics-2005, Seoul, Korea, 2005.
231. Lambertus Hesselink, Invited Talk: " Ultra-high density data storage," IEEE LEOS 2004, The 17th Annual Meeting of the IEEE Laser & Electro-Optics Society Puerto Rico, November 11-17, 2004.
232. Hesselink, Lambertus, Plenary Talk "Internet assisted laboratories," International Symposium, Remote Engineering and Virtual Instrumentation, September 28-29, 2004, Villach, Austria.
233. Hesselink, Lambertus; Leen, Brian; Matteo, Joe; Sun, Liying; Yuen, Yin, Plenary Talk " Ultra-high density data storage." LEOS 2004, November 11-17, 2004, Puerto Rico.
234. Hesselink, Lambertus, Plenary Talk: " Ultra-High Density Optical Data Storage," The 1st Symposium of CREST, JST, Tokyo, Japan, Dec 11-15, 2004,
235. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Direct-write E-beam Sub-Micron Domain Engineering in Lithium Niobate Thin Films grown by Liquid Phase Epitaxy", 2005 SPIE Photonics West, January 2005

236. Hesselink, Lambertus, Matteo, Joe; Yuen, Yin; Leen, Brian; Sun, Liying, paper "Nano-Photonic Components for Network Applications, KEIO, February 2005.
237. Dubois, M., Shi, Xiaolei, Lawrence, B., Tian, P., Boden, E., Chan, K. P., Nielsen, M. and Hesselink, L., paper, "Characterization of a Preliminary Narrow-Band Absorption Material for Holographic Data Storage, February 2005.
238. Lambertus Hesselink, Plenary Talk: "High Density Holographic Data Storage," Holography '05, International Conference on Holography, Optical Recording and Processing of Information, Varna, Bulgaria, "Frederic Joliot-Curie" Congress Center, May 21-25, 2005.
239. Ji-Won Son and L. Hesselink, "Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam Techniques", Plenary Talk, 10th International Conference on Photorefractive Effects, Materials and Devices, Hainan, P. R. China, July 2005.
240. Ji-Won Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", 10th International Conference on Photorefractive Effects, Materials and Devices, Hainan, P. R. China, July 2005.
241. Lambertus Hesselink, Plenary Talk: "Holographic Data Storage," ESOM/ODS International Symposium on Optical Memories and Optical Data Storage, Honolulu, Hawaii, July 10-13, 2005.
242. Ji-Won Son, S. Orlov, W. Phillips, and L. Hesselink, "Pulsed laser deposition of single phase LiNbO₃ thin film waveguides", International Conference on Electroceramics-2005, Seoul, Korea, 2005.
243. Liying Sun, Rajesh K. Batra, Xiaolei Shi, Lambertus Hesselink, "Topology Visualization of the Optical Power Flow through a Novel C-shaped Nano- Aperture," Visualization October 10-15, 2004, accepted for October 5, 2004 conference proceedings.
244. J. W. Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", TOPS. Vol. 99, PR'05, 10th Int. Conf. on photorefractive effects, materials and devices, Hainan China, July 2005.
245. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Direct-write E-beam Sub-Micron Domain Engineering in Liquid Phase Epitaxy LiNbO₃ Thin Films", *SPIE Proceedings*, Vol. 5728, 283-290, 2005.
246. J. W. Son and L. Hesselink, "Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam Techniques", Plenary Talk, 10th Int. Conf. on photorefractive effects, materials and devices, Hainan, P. R. China, 2005.
247. J. W. Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", 10th Int. Conf. on photorefractive effects, materials and devices, Hainan, P. R. China, 2005.
248. J. W. Son, S. Orlov, W. Phillips, and L. Hesselink, "Pulsed laser deposition of single phase LiNbO₃ thin film waveguides", International Conference on Electroceramics-2005, Seoul, Korea, 2005.
249. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Direct-write E-beam Sub-Micron Domain Engineering in Liquid Phase Epitaxy LiNbO₃ Thin Films", Photonics West, San Jose, USA, 2005
250. Laser ablation of silicon in water with nanosecond and femtosecond pulses, Ren, J; Kelly, M; Hesselink, L, Optics Letters; Jul 1 2005; v.30, no.13, p.1740-1742

251. Electromagnetic phenomena in advanced photomasks, Schellenberg, FM; Adam, K; Matteo, J; Hesselink, L, Journal of Vacuum Science and Technology B: Microelectronics and Nanometer Structures; November/December 2005; v.23, no.6, p.3106-3115
252. Fractal extensions of near-field aperture shapes for enhanced transmission and resolution, Matteo, JA; Hesselink, L, Optics Express; January 2005; v.13, no.2, p.636-647
253. Characterization of a preliminary narrow-band absorption material for holographic data storage, Dubois, Marc; Shi, Xiaolei; Lawrence, Brian; Boden, Eugene; Chan, Kwok Pong; Nielsen, Matthew; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2004; v.5380, p.589-596, Conference: Optical Data Storage 2004; Apr 18-21 2004; Monterey, CA, United States
254. Topology visualization of the optical power flow through a novel C-shaped nano-aperture, Sun, Liying; Batra, Rajesh K.; Shi, Xiaolei; Hesselink, Lambertus, IEEE Visualization 2004 - Proceedings, VIS 2004; 2004; p.337-344, Conference: IEEE Visualization 2004 - Proceedings, VIS 2004; Oct 10-15 2004; Austin, TX, United States
255. Ultra-high density optical data storage., Hesselink, L.; Leen, B.; Matteo, J.; Liying Sun; Yin Yuen, 2004 IEEE LEOS Annual Meeting Conference Proceedings, 7-11 Nov. 2004, Rio Grande, Puerto Rico; p.796-7 Vol.2, Conference: 2004 IEEE LEOS Annual Meeting Conference Proceedings, 7-11 Nov. 2004, Rio Grande, Puerto Rico
256. Hesselink, Lambertus, Plenary Talk "Internet assisted laboratories," International Symposium, Remote Engineering and Virtual Instrumentation, September 28-29, 2004, Villach, Austria.
257. Hesselink, Lambertus; Leen, Brian; Matteo, Joe; Sun, Liying; Yuen, Yin, Plenary Talk " Ultra-high density data storage." LEOS 2004, November 11-17, 2004, Puerto Rico.
258. Hesselink, Lambertus, Plenary Talk: " Ultra-High Density Optical Data Storage," The 1st Symposium of CREST, JST, Tokyo, Japan, Dec 11-15, 2004,
259. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Direct-write E-beam Sub-Micron Domain Engineering in Lithium Niobate Thin Films grown by Liquid Phase Epitaxy", 2005 SPIE Photonics West, January 2005
260. Hesselink, Lambertus, Matteo, Joe; Yuen, Yin; Leen, Brian; Sun, Liying, paper "Nano-Photonic Components for Network Applications, KEIO, February 2005.
261. Dubois, M., Shi, Xiaolei, Lawrence, B., Tian, P., Boden, E., Chan, K. P., Nielsen, M. and Hesselink, L., paper, "Characterization of a Preliminary Narrow-Band Absorption Material for Holographic Data Storage, February 2005.
262. Lambertus Hesselink, Plenary Talk: "High Density Holographic Data Storage," Holography '05, International Conference on Holography, Optical Recording and Processing of Information, Varna, Bulgaria, "Frederic Joliot-Curie" Congress Center, May 21-25, 2005.
263. Ji-Won Son and L. Hesselink, "Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam Techniques", Plenary Talk, 10th International Conference on Photorefractive Effects, Materials and Devices, Hainan, P. R. China, July 2005.
264. Ji-Won Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", 10th International Conference on Photorefractive Effects, Materials and Devices, Hainan, P. R. China, July 2005.
265. Lambertus Hesselink, Plenary Talk: "Holographic Data Storage," ESOM/ODS International Symposium on Optical Memories and Optical Data Storage, Honolulu, Hawaii, July 10-13, 2005.

266. Ji-Won Son, S. Orlov, W. Phillips, and L. Hesselink, "Pulsed laser deposition of single phase LiNbO₃ thin film waveguides", International Conference on Electroceramics-2005, Seoul, Korea, 2005.
267. Goos-Hanchen Surface Plasmon Resonance Sensor, Lambertus Hesselink, American Chemical Society Meeting, 2007, Boston
268. Holographic Data Storage, Present and Future, Lambertus Hesselink, Asia Pacific Data Storage Conference, 2006, Lakeshore Hotel, Hsin Chu, Taiwan
269. Significant Performance Enhancement of Nano-photonic Devices by Using Resonant Surface Plasmons, Lambertus Hesselink, Xiaobo Yin, Brian Leen, Paul Hansen, Yin Yuen, International Meeting on Photonics, UEC 2006, Japan
270. Surface Plasmon Enhancement of Nano-photonic Devices, Lambertus Hesselink, ICOLA 2007, Indonesia
271. Significant Performance Enhancement of Nano-Photonic Devices by Using Resonant Surface Plasmons, Lambertus Hesselink, Xiaobo Yin, Brian Leen, Paul Hansen, Yin Yuen, International Meeting on Photonics 2006, Hyderabad, India
272. "Optical Designs for Page-based and Bit-based Holographic Data Storage Systems", Lambertus Hesselink, FujiFilm Symposium, December 2006
273. Single Bit holographic data storage system, Lambertus Hesselink, GE Global Research Center, 2007
274. L. Hesselink, Ultra-High Throughput C-Apertures for Applications in Optical Data Storage and NSOM Imaging, Asian Pacific Conference on Near Field Optics, Jeju Island, Korea, November 25-27, 2009 (Keynote)
275. L. Hesselink, Bell-Labs for Energy, Department of Energy, Office of the Assistant Secretary for Energy, October 2009
276. L. Hesselink, Fundamental Principles of High Performance C-apertures and Their Applications, Seoul National University, November 29, 2009
277. L. Hesselink, Near-Field Optical Transducers, Techniche 2010, Guwahati, India (Keynote)
278. L. Hesselink, Surface Plasmon Resonance Effects, California Institute of Technology, February 17, 2010
279. L. Hesselink, Green Energy Car Project, University of Twente, December 7, 2009
280. L. Hesselink, Energy Research Directions for Sustainability, University of Eindhoven, March 201
281. L. Hesselink, Sustainable Energy Research Directions, Royal Dutch Shell, March 2010
282. L. Hesselink, Recent developments in Near-Field Optical Transducers for Data Storage, ODS Annual Meeting, Boulder Co, May 2010
283. L. Hesselink, Fundamental Issues related to near-field optical transducers, ODS Short Course Symposium, May 2010
284. Y. Takashima. "A Systematic Comparison of Bit-based and Page-based Holographic Storage Systems". Invited Talk in *Optical Data Storage Topical Meeting*, Colorado, (2010).
285. Y. Takashima, Y. Cheng, P. Hansen, Y. Yuen, L. Hesselink, R. F. Pease, J. R. Maldonado and P. A. Pianetta. "Demonstration of $\lambda/50$ optical spot using a C-Aperture Nano Tip for Electron Photo-emitter applications". Invited Talk in Annual Symposium of Stanford Photonics Research Center, Stanford CA, (2010)

286. A. Koç, Y. Takashima, and L. Hesselink, "Systematic analysis of the validity regions of scalar diffraction integral and angular spectrum method," Biomedical Optics and 3-D Imaging: OSA Optics and Photonics Congress, Florida, USA, 2010.
287. Invited paper, Hesselink, L., Fundamental aspects of near-field optical transducers for energy assisted magnetic recording, NSIC Annual Meeting, 2010
288. Invited paper, P. Hansen, Y. Zheng, E. Perederey, and L. Hesselink, "Adjoint FDTD for Nanophotonic Device Optimization," in Joint International Symposium on Optical Memory and Optical Data Storage, OSA Technical Digest (CD) (Optical Society of America, 2011), paper OTuE2.2011
289. Plenary paper, Hesselink, L. How one year as a Fulbright scholar at Caltech turned into a lifetime benefit, Caltech EE Centennial, 2011
290. Invited talk, Hesselink, L. Sustainable Energy Systems, Distinguished speaker series, Energy Center the Netherlands, 2011
291. Invited speaker, Hesselink, L. Content distribution systems, Connections, CES 2011, Las Vegas
292. Invited speaker, Hesselink, L. Digital Content Distribution Systems, Digital Hollywood, New York, 2011
293. Hesselink, L. Invited paper, 3-D wearable head-up display, Japanese Optical Society, Tokyo, Japan, 2011
294. Hesselink, L. Novel X-ray phase contrast imaging systems, DHS, Washington, DC, , 2011
295. Plenary keynote paper, Hesselink, L., Hansen, P., Takashima, Y., Fundamental understanding of optical near-field transducers for data storage, International Society of Optical memories (ISOM)/ Optical Data Storage (ODS) 2011, Hawaii
296. Plenary paper, Hesselink, L. Fundamentals of near-field transducers and applications to <20nm microscopy and photon-electron sources, C. Dentz Symposium, Munster, 2011
297. Invited paper, Hesselink, L., Fundamental principles underlying near-field transducers for data storage, IQEC/CLEO Pacific Rim, IEEE, Sydney Australia, 2011
298. Plenary paper, Hesselink, L., From the Classroom to the Boardroom; Lessons learned. Yonsei International Symposium Computer Technology Symposium, 2011
299. Plenary speaker, Hesselink, L., Sustainable energy systems, ACTI Annual Symposium, Dutch Center for Technology Innovation, Annual meeting on innovation, speaker and panel member, 2011
300. Invited speaker at Joe Goodman Symposium, Hesselink, L., Sub 20 nm Photo-Electron Beam Arrays, 2011
301. Invited paper, Koc, A, Ozaktas, H.M., Hesselink, L., Fast and accurate algorithms for quadratic phase integrals in optics and signal processing, SPIE, 2011
302. Invited paper, Hansen, P., Perederey, E, Hesselink, L., Adjoint FDTD for Nanophotonic Device Optimization, ISOM/ODS, Hawaii, 2011
303. Invited paper, Takashima, Y, Hesselink, L., Design and implementation of wearable head- up display for mobile phone applications, Digital Holography and 3-D imaging DH-2011, OSA 3-D Symposium, Tokyo, Japan, 2011
304. Invited speaker, Hesselink, L. Fundamentals and applications of nano-photonics, International School on Quantum and Nano Computing Systems and Applications at Dayalbagh Educational Institute, Agra, India, 2011

- 305.Hesselink, L. Sustainable Energy Systems, Twente University, Netherlands, 2011
- 306.Hesselink, L. Energy flow and sustainable energy research, Delft University, Netherlands, 2011
- 307.Hesselink, L. Fundamentals and applications of nano-apertures, Caltech distinguished lecture series, 2011
- 308.Hesselink, L., From the classroom to the boardroom, lessons learned, Yonsei distinguished lecture series, Yonsei University, 2011
- 309.Keynote, L. Hesselink, "Secure Content Storage Association", ODS 2012, Tucson AR
- 310.Invited, L. Hesselink, Y. Takashima, "Wearable Head-up Display", CC3DMR, Seoul, Korea, June 2012
- 311.Invited, Juan R. Maldonado and Piero Pianetta, Yao-Te Cheng, Lambertus Hesselink, and R. Fabian Pease, Yuzuru Takashima, Chuong Huynh and Larry Scipioni, ""CsBr based photoelectron nano sources", Cold Beams Conference, Nimes, France, 2012
- 312.Invited, L. Hesselink, "Differential Phase Contrast Imaging for DHS applications", Non destructive testing Symposium, Maryland, 2012
- 313.Invited, L. Hesselink, "DPC imaging and Photo Electron Arrays for 3-D X-ray imaging", Industry day Symposium, Department of Homeland Security, Washington, DC, 2012
- 314.Invited, L. Hesselink, CES storage Symposium, Secure Content Storage Association, Las Vegas, 2012
- 315.Invited, L. Hesselink, Ambassadeurs meeting, "Renewable energy systems", 2012, Amsterdam
- 316.Invited, L. Hesselink, Faculty College, "Energy sequence for EE students", May 2012
- 317.Invited, L. Hesselink, Comcast broadcasting meeting, "Secure Content Storage Association", Denver, CO
- 318.Invited, L. Hesselink, "Nano photonics with application to optical data storage and imaging", Symposium Boulder CO
- 319.Invited, L. Hesselink, "Innovation at Universities", Dutch Symposium on Innovation, November 2012, The Hague
- 320.Invited, L. Hesselink, "Nano Photonics and Applications", 3-D Imaging Symposium, Yonsei, Korea, 2012
- 321.Invited, L. Hesselink, "Phase contrast tomography and X-ray source for homeland security applications, Industry day, Washington DC, September 18, 19 2012
- 322.Invited L. Hesselink, AP 2, "Nano Optics for application in data storage and imaging", Stanford University, October 2012
- 323.Invited L. Hesselink, "Optical data storage with nano technology", Yonsei University, Korea, October 2012
- 324.Invited, L. Hesselink, "Fundamental Principles of Nano Photonics", University of Colorado, May 2012
325. Invited, L. Hesselink, Y. Takashima, "Wearable Head-up Display", CC3DMR, Seoul, Korea, June 2013
326. Invited, L. Hesselink, "Nano Optical Photo Electron Source", CC3DMR, Jeju Island, Korea, June 2013
327. Invited, L. Hesselink, "Differential Phase Contrast 3-D imaging", ISPD, Beijing, June 2013

328. Invited, L. Hesselink, "Differential Phase Contrast 3-D Imaging system and Applications, DHS Symposium, Washington DC, August 2013
329. Invited, L. Hesselink, "Novel Photo-Electron Source for Application in Data Storage , 3-D X-Ray and Medical Imaging, IPC ODS meeting, September 2013
330. Invited, L. Hesselink, "DPC Imaging for Aviation Security Applications", September 2013
331. Invited, L. Hesselink, "Photo Electron X-Ray Source Array", SPRC, September 2013
332. Invited, L. Hesselink, "DPC for Aviation Security Applications", ADSA09, October 2013
333. Invited, L. Hesselink, "Recent Advances in DPC 3-D X-Ray Imaging", Imaging Symposium, October 2013
334. Invited, Carlo Scalo, Jeffrey Lin, Sanjiva K. Lele and Lambertus Hesselink, A numerical study of thermoacoustic Stirling heat engines, The Thermal & Fluid Sciences Affiliates and Sponsors Conference at Stanford University (Feb. 2013)
335. Invited, Jeffrey Lin, Carlo Scalo, Sanjiva K. Lele and Lambertus Hesselink, Thermoacoustic Stirling heat engines and refrigerators, Stanford Energy Showcase at Stanford University (April 2013)
336. L. Hesselink, "DPC X-ray measurements of liquids", Duke University, November 2013
337. L. Hesselink, "3-D Differential Phase Contrast X-Ray Imaging: recent results", Collaborative Conference on 3D and Materials Research (CC3DMR) 2015, Busan, South Korea, June 2015
338. L. Hesselink, M. Yuen, C-W. Chang, Y-T. Cheng, G. Herring, L. Galambos, S. Orlov, J. Wilde, W. Aitkenhead, Y-S. Kim, J. Kim, S. Wang, C. Summitt, Y. Takashima, "Novel 3D Differential Phase Contrast Imaging System", Collaborative Conference on 3D and Materials Research (CC3DMR) 2016, Seoul, South Korea, June 2016

CONTRIBUTED TALKS: (93-05) 1981-1992 AVAILABLE ON REQUEST. PARTIAL LIST

1. Hesselink, L., "Volumetric Hologram Storage," AFOSR/NC, Organic/Polymeric Photorefractive Materials Workshop, Thousand Oaks, CA July 22, 1994.
2. Hesselink, L., "Holographic Information Storage," tutorial CLEO/IQEC '94, Anaheim, CA May 8-12, 1994.
3. Hesselink, L., "Materials for Holographic Storage," Material Science Seminar, Stanford University, March 4, 1994.
4. Hesselink, L.; Bashaw, M. C., "Optical memories implemented with photorefractive media," Optical and Quantum Electronics 25(9), special issue on Optical Memories and Neural Networks, S611, 1993.
5. Hesselink, L.; "Holographic Data Storage Systems and Materials," OSA Topical Meet, Photorefractive Materials, Effects & Devices, Estes Park, CO, June 1995.
6. IEEE/LEOS, Lasers and Electro-Optics Society, invited chairperson "Optical Data Storage Systems," San Francisco, CA November 1995.
7. OSA Topical Meeting, Program Committee Session Chair: Holography, Boston, MA, April 1996.
8. Presentation at Visualization '97 Conference, Phoenix, AZ, October 20-24, 1997, "Singularities in Non-uniform Tensor Fields," by Yingmei Lavin and Lambertus Hesselink.

9. Liu, Alice; Lee, Myeongku; and Hesselink, Lambertus , "Light Induced Properties and Thermal Fixing in Photorefractive Lead Barium Niobate Crystals," PR '99 7th Topical Meet on Photorefractive Materials, Effects and Devices, June 27-30, 1999, Elsinore, Denmark
10. Orlov, Sergei S.; Liu, Alice; Lambertus Hesselink; and Neurgaonkar, R. R., "Two-photon holographic recording and stoichiometric lithium niobate," PR '99 7th Topical Meet on Photorefractive Materials, Effects and Devices, June 27-30, 1999, Elsinore, Denmark
11. ISOM/ODS '99 Conference, "Physical Properties of volume holographic recording utilizing photoinitiated polymerization for nonvolatile digital data storage," Paraschis, Loukas; Sugiyama, Yasuyuki; and Hesselink, Lambertus, July 11-15, 1999, Koloa, Hawaii.
12. SPIE Annual Meeting, "Physical Properties of Photopolymer Recording for Nonvolatile Volume Holographic Storage," Paraschis, Loukas; Sugiyama, Yasuyuki; and Hesselink, Lambertus," July 18-20, 1999, Denver, CO.
13. American Conference on Crystal Growth and Epitaxy, "Crystal Growth of Stoichiometric LiNbO₃ using LiV0₃ as Flux," Galambos, Ludwig; Akella, Annapoorna; Hesselink, Lambertus, "August 1-6, 1999, Tucson, AZ.
14. ICO '99 SPIE International Society for Optical Engineering Conference, "Physical Properties of Photopolymer Recording for Nonvolatile Volume Holographic Storage," Paraschis, Loukas; Sugiyama, Yasuyuki; and Hesselink, Lambertus, August 2-6, 1999, San Francisco, CA.
15. IEEE Visualization '99, "Feature Comparisons of 3-D Vector Fields using Earth Movers Distance," R. Batra & L. Hesselink, San Francisco, CA, October 29, 1999.
16. IEEE Visualization '99, "Topology-Based Vector Field Comparisons Using Graph Methods," R. Batra, Kerstin Kling, and L. Hesselink, San Francisco, CA October 24-29, 1999.
17. Photonics West 2000, IS&T/SPIE's 12th Annual Symposium on Electronic Imaging, "Topology-Based Methods for quantitative Comparisons of Vector Fields," by Rajesh Batra, Kerstin Kling, and Lambertus Hesselink, San Jose, CA, January 23-28, 2000.
18. CLEO 2000 Conference, "Holographic digital storage with sensitive and flexible photo-initiated polymerization recording," by L. Paraschis, Y. Sugiyama, S. Orlov and L., Hesselink, Stanford University, San Francisco, California, May 7-12, 2000.
19. ODS 2001 Conference, Xiaolei Shi, Robert Thornton, Lambertus Hesselink, "Nano-aperture with Ultra-high Power Throughput for VSAL", Optical Data Storage Topical Meeting (ODS), Santa Fe, New Mexico, 4/22-4/25, 2001.
20. OSA 2001, "Nano-aperture with Ultra-high Power Throughput or Near Field Optical Applications", Xiaolei Shi, Robert L. Thornton, Lambertus Hesselink, October 14-18, 2001, Long Beach, CA,
21. QELS 2002 conference, Xiaolei Shi, Robert Thornton, Lambertus Hesselink, "Greatly Enhanced Power Throughput from a "C"-shaped Metallic Nano-Aperture for Near Field Optical Applications", Quantum Electronics and Laser Science Conference, Long beach, CA., May 19-23, 2002.
22. NF07 International Conference, Xiaolei Shi, Robert Thornton, Lambertus Hesselink, "Greatly Enhanced Light Transmission through a "C"-shaped Metallic Nano-aperture for Near Field Optical Applications", The 7th International Conference on Near-Field Optics and Related Techniques (NFO7), Rochester, NY, August 11-15, 2002.
23. OSA Annual Meeting, Xiaolei Shi, Lambertus Hesselink, "Metallic Nano-aperture's Geometric Effect on Light transmission", Annual meeting of the Optical Society of America, Orlando, Florida, September 29 to October 3, 2002.

24. OSA Annual Meeting, Joseph Matteo, Xiaolei Shi, Yin Yuen, Lambertus Hesselink, "Optical nano-tweezer using enhanced transmission sub-wavelength aperture", Annual meeting of the Optical Society of America, Orlando, Florida, September 29 to October 3, 2002.
25. OSA Annual Meeting, Jun Ren, Lambertus Hesselink, "Laser silicon micromachining," Annual Meeting of the Optical Society of America, Orlando, Florida, September 29 to October 3, 2002.
26. ICOLA'02 Conference, Lambertus Hesselink, Xiaolei Shi, "Ultra-high Power Transmission Through a Single Nano-Aperture", International Conference on Opto-electronics and Laser Applications (ICOLA), Jakarta, Indonesia, October 2-3, 2002 (Invited).
27. CLEO-Europe EQEC 03 Conference, "Digital Volume Holography and Optical Disk Storage System," M. Inoue and L. Hesselink, Munich, Germany, J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, June 2003
28. OSA Topical Meeting: Bragg Gratings Photosensitivity and Poling in Glass Waveguides, Ji-Won Son, Yin Yuen, Sergei S. Orlov, Bill Phillips, Ludwig Galambos, Lambertus Hesselink, Stanford University and Vladimir Y. Shur, Ural State University, "Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy," Monterey, California, September 1-3, 2003.
29. Stanford Photonics Research Center Annual Meeting, J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Direct-write e-beam domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy, September 2003.
30. Stanford Photonics Research Center Annual Meeting, J. W. Son, W. Phillips, L. Galambos, S. Orlov, and L. Hesselink, "Growth and Characterization of Lithium Niobate Waveguide by Liquid Phase Epitaxy," September 2003.
31. Bragg Gratings Photosensitivity and Poling in Glass Waveguides, OSA Topical Meeting, J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", Monterey, CA, September 2003.
32. OSA Annual Meeting, Laser Science XIX, Jun Ren and L. Hesselink, "Laser silicon micromachining", Orlando, FL, Sept-October 2003.
33. OSA Annual Meeting, Laser Science XIX, J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", Tucson, AZ, October 2003.
34. Materials Research Society Fall Meeting J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Submicron Ferroelectric Domain engineering in LiNbO₃ thin films grown by liquid phase epitaxy", Boston, MA, December 2003
35. Materials Research Society Fall Meeting, Ferroelectric Thin Films, XII, J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink, "Parametric studies on Suppressing Secondary Phases in Lithium Niobate Thin Films deposited by Pulsed Laser Deposition", Boston, MA, December 2003.
36. Son, Ji-Won, Orlov, Sergei, Phillips, Bill and Hesselink, Lambertus, "Parametric studies on Suppressing Secondary Phases in Lithium Niobate thin films deposited by Pulsed Laser Deposition, MRS Fall Meeting, Boston, MA, December 2003.
37. Ren, Jun, Orlov, Sergei, and Hesselink, Lambertus. "Nanosecond laser silicon micromachining," Photonics West 2004, Santa Clara, CA January 2004.
38. Liying Sun, Rajesh K. Batra, Xiaolei Shi, Lambertus Hesselink, "Topology Visualization of the Optical Power Flow through a Novel C-shaped Nano- Aperture," Visualization October 10-15, 2004, accepted for October 5, 2004 conference proceedings.

39. J. W. Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", TOPS. Vol. 99, PR'05, 10th Int. Conf. on photorefractive effects, materials and devices, Hainan China, July 2005.
40. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink,, "Direct-write E-beam Sub-Micron Domain Engineering in Liquid Phase Epitaxy LiNbO₃ Thin Films", *SPIE Proceedings*, Vol. 5728, 283-290, 2005.
41. Liying Sun, Rajesh K. Batra, Xiaolei Shi, Lambertus Hesselink, "Topology Visualization of the Optical Power Flow through a Novel C-shaped Nano- Aperture," Visualization October 10-15, 2004, accepted for October 5, 2004 conference proceedings.
42. J. W. Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", TOPS. Vol. 99, PR'05, 10th Int. Conf. on photorefractive effects, materials and devices, Hainan China, July 2005.
43. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink,, "Direct-write E-beam Sub-Micron Domain Engineering in Liquid Phase Epitaxy LiNbO₃ Thin Films", *SPIE Proceedings*, Vol. 5728, 283-290, 2005.
44. J. W. Son and L. Hesselink, "Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam Techniques", Plenary Talk, 10th Int. Conf. on photorefractive effects, materials and devices, Hainan, P. R. China, 2005.
45. J. W. Son, Y. Yuen, S. Orlov, and L. Hesselink, "Effects of e-Beam Parameters on Sub-micron Ferroelectric Domain Engineering in Liquid Phase Epitaxy LiNbO₃ by Direct-Write e-Beam", 10th Int. Conf. on photorefractive effects, materials and devices, Hainan, P. R. China, 2005.
46. J. W. Son, S. Orlov, W. Phillips, and L. Hesselink, "Pulsed laser deposition of single phase LiNbO₃ thin film waveguides", International Conference on Electroceramics-2005, Seoul, Korea, 2005.
47. J. W. Son, Y. Yuen, S. Orlov, W. Phillips, L. Galambos, V. Shur, and L. Hesselink,, "Direct-write E-beam Sub-Micron Domain Engineering in Liquid Phase Epitaxy LiNbO₃ Thin Films", Photonics West, San Jose, USA, 2005
48. Laser ablation of silicon in water with nanosecond and femtosecond pulses, Ren, J; Kelly, M; Hesselink, L, Optics Letters; Jul 1 2005; v.30, no.13, p.1740-1742
49. Electromagnetic phenomena in advanced photomasks, Schellenberg, FM; Adam, K; Matteo, J; Hesselink, L Journal of Vacuum Science and Technology B: Microelectronics and Nanometer Structures; November/December 2005; v.23, no.6, p.3106-3115
50. Fractal extensions of near-field aperture shapes for enhanced transmission and resolution, Matteo, JA; Hesselink, L, Optics Express; January 2005; v.13, no.2, p.636-647
51. Characterization of a preliminary narrow-band absorption material for holographic data storage Dubois, Marc; Shi, Xiaolei; Lawrence, Brian; Boden, Eugene; Chan, Kwok Pong; Nielsen, Matthew; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2004; v.5380, p.589-596, Conference: Optical Data Storage 2004; Apr 18-21 2004; Monterey, CA, United States
52. Topology visualization of the optical power flow through a novel C-shaped nano-aperture, Sun, Liying; Batra, Rajesh K.; Shi, Xiaolei; Hesselink, Lambertus, IEEE Visualization 2004 - Proceedings, VIS 2004; 2004; p.337-344, Conference: IEEE Visualization 2004 - Proceedings, VIS 2004; Oct 10-15 2004; Austin, TX, United States
53. Ultra-high density optical data storage., Hesselink, L.; Leen, B.; Matteo, J.; Liying Sun; Yin Yuen, 2004 IEEE LEOS Annual Meeting Conference Proceedings, 7-11 Nov. 2004, Rio Grande, Puerto Rico; p.796-7 Vol.2,

Conference: 2004 IEEE LEOS Annual Meeting Conference Proceedings, 7-11 Nov. 2004, Rio Grande, Puerto Rico.

54. Low-loss subwavelength metal C-aperture waveguide, Sun, Liying; Hesselink, L.; Optics Letters, 15 Dec 2006, vol 31, no. 24, p 3606-8.
55. Media tilt tolerance of bit-based and page-based holographic storage systems, Takashima, Y.; Hesselink, L.; 2006 Optical Data Storage Topical Meeting, 23-26 April 2006, Montreal, Quebec, Canada, p 221-3.
56. C-shaped nanoaperture-enhanced germanium photodetector, Liang Tang; Miller, DAB; Okyay, AK; Matteo, J.A.; Yin Yuen, Saraswat, KC; Hesselink, L., Optics Letters; 15 May 2006, vol. 31, no. 10, p. 1519-21.
57. Temporal and spectral nonspecularities in reflection at surface plasmon resonance, Xiaobo Yin; Hesselink, L.; Chin, H.; Miller DAB, Applied Physics Letters, 24 July 2006; vol. 89, no. 4, p. 41102-1-3.
58. A C-shaped nanoaperture Vertical-Cavity Surface-Emitting Laser for high-density near-field optical data storage, Rao, Zhilong; Matteo, Joseph A.; Hesselink, Lambertus; Harris, James S.
The International Society for Optical Engineering; 2006; v.6132
Conference: Vertical-Cavity Surface-Emitting Lasers X; San Jose, CA, United States
59. Media tilt tolerance of bit-based and page-based holographic storage systems, Takashima, Yuzuru; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2006; v.6335, Conference: Organic Holographic Materials and Applications IV; 2006; San Diego, CA, United States
60. Media tilt tolerance of bit-based and page-based holographic storage systems, Takashima, Yuzuru; Hesselink, Lambertus, 2006 Optical Data Storage Topical Meeting - Post Deadline Papers; 2006; p.221-223
Conference: 2006 Optical Data Storage Topical Meeting; 2006; Montreal, QB, Canada
61. Highly sensitive surface plasmon resonance chemical sensor based on Goos-Hanchen effects, Yin, Xiaobo; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2006; v.6324, Conference: Plasmonics: Nanoimaging, Nanofabrication, and their Applications II; 2006; San Diego, CA, United States
62. En-squared power based optical design for page-based holographic storage systems, Takashima, Yuzuru; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2006; v.6342 I, Conference: International Optical Design Conference 2006; 2006; Vancouver, BC, Canada
63. Media tilt tolerance of bit-based and page-based holographic storage systems, Takashima, Yuzuru; Hesselink, Lambertus, Proceedings of SPIE - The International Society for Optical Engineering; 2006; v.6282, Conference: Optical Data Storage 2006; 2006; Montreal, Canada
64. Lens designs for page-based holographic storage systems, Takashima, Yuzuru; Orlov, Sergei; Hesselink, Lambertus, Department of Electrical Engineering Stanford University 420 Via Palou Mall ; Stanford, CA 94305 ; United States, Proceedings of SPIE - The International Society for Optical Engineering; 2007; v.6620, Conference: * Optical Data Storage 2007; Portland, OR, United
65. Highly sensitive surface plasmon resonance chemical sensor based Goos-Hänchen effects, X. B. Yin, L. Hesselink, Proceedings of SPIE 6324, (2006).
66. 90 degree bent metallic waveguide with a tapered C-shaped aperture for use in HAMR, Leen, J. Brian; Cho, Eunhyoung; Sun, Sung-Dong; Hansen, Paul C.; Sohn, , Jin-Seung; Choa, Sung-Hoon; Hesselink, Lambertus, Dept. of Applied Physics Stanford University ; Stanford, CA 94305, Proceedings of SPIE - The International Society for Optical Engineering; 2007; v.6620, Conference: Optical Data Storage 2007; Portland, OR, United States
67. High-intensity bowtie nano-aperture Vertical-Cavity Surface-Emitting Laser for ultrahigh-density near-field optical data storage, Rao, Zhilong; Hesselink, Lambertus; Harris, James S., Solid State and Photonics

Laboratory Stanford University ; Stanford, CA 94305, Proceedings of SPIE - The International Society for Optical Engineering; 2007; v.6620, Optical Data Storage 2007; Portland, OR, United States

68. Media tilt tolerance of bit-based and page-based holographic storage Systems, Takashima, Yuzuru; Hesselink, Lambertus, Department of Electrical Engineering Stanford University 420 Via Palou Mall ; Stanford, CA 94305 ; United States, Proceedings of SPIE - The International Society for Optical Engineering; 2006; v.6335, Conference: Organic Holographic Materials and Applications IV; 2006; San Diego, CA, United States
69. "90° Bent Metallic Waveguide with a Tapered C-shaped Aperture for Use in HAMR", John B. Leen, Eunhyoung Cho, Sung-Dong Suh, Paul C. Hansen, Jin-Seung Sohn, Sung-Hoon Choa, Lambertus Hesselink, Optical Data Storage 2007, Proceedings of SPIE - The International Society for Optical Engineering; 2007; v.6620
70. L. B. Rad, Y. Takashima, P. Pianetta, J. Miao, L Hesselink, and F. Pease. "Iterative Phase Recovery Using Wavelet Domain Constraints". In The 53rd International Conference on electron, ion and photon beam technology and nanofabrication, (2009).
71. L. B. Rad, Y. Takashima, P. Pianetta, J. Miao, L Hesselink and F. Pease. "Iterative Phase Recovery Using Wavelet Domain Constraints". In Bernard M. Gordon Center for Subsurface Sensing and Imaging Systems (Gordon-CenSSIS), Research and Industry Collaboration Conference, (2009)
72. Y. Takashima and L. Hesselink. "Design and tolerance of two-element NA 0.8 objective lenses for page-based holographic data storage systems". In SPIE Optics and Photonics, (2009).
73. R. Dinyari, Y. Takashima and P. Peumans, L. Hesselink "A Curvable Silicon Retinal Implant", In Poster Session of Stanford Center for Integrated Systems, Fall Advisory Committee Meetings, Stanford CA, (2010)
74. Y. Takashima and L. Hesselink, "Design and implementation of recording and readout system for micro holographic optical data storage". In Current Developments in Lens Design and Optical Engineering XI, San Diego, California (2010).
75. Y. Takashima, L. Hesselink, "A Systematic Comparison of Bit-based and Page-based Holographic System, ODS 2010, Boulder CO
76. Y. Takashima, Y. Cheng, P. Hansen, Y. Yuen, B. Leen and L. Hesselink. "Experimental Demonstration of a Spot Size of $\lambda/50$ by Novel NSOM Probe: C-Aperture Nano-Tip". In 2nd Annual Center for Biomedical Imaging at Stanford Symposium, (2010).
77. A. Koc, Y. Takashima and L. Hesselink. "Systematic analysis of the validity regions of scalar diffraction integral and angular spectrum method". In Digital Holography and Three-Dimensional Imaging, Florida, (2010).
78. Yao-Te Cheng, Yuzuru Takashima, Juan R. Maldonado, David Ferranti, William Thompson, Lambertus Hesselink, R. Fabian Pease, "Crisp, high aspect-ratio, C-shaped nano apertures fabricated in evaporated aluminum using focused helium ions", EIPBN, Las Vegas, NV (2011).
79. Takashima, Y. et al., Novel Optical Architecture for High Capacity and High Data Transfer Rate Holographic Data Storage, CLEO 2011, May 2011
80. Takashima, Y, Hesselink, L., Design and implementation of recording and readout system for micro-holographic optical data storage, Annual Meeting SPIE,
81. Takashima, Y et al., Experimental verification of $\lambda/50$ optical spot size of a C-aperture nano-antenna tip for photo-emitter applications, International Vacuum Nano-electronics Conference, 2011
82. Hansen, P., et al., Nano-photonic device optimization with adjoint FDTD, CLEO 2011,

83. Takashima, Y et al., Experimental verification of $\lambda/50$ optical spot size of a C-aperture nano-antenna tip for photo-emitter applications, International Vacuum Nano-electronics Conference, 2011
84. J. Piper, P. Hansen, L. Hesselink, "Fundamentals of excitation and resonance of a Near-Field Transducer in the presence of a conductive magnetic recording medium, SPIE Photonics West, San Francisco (2012)
85. Y. Takashima, Toan Tran, L. Hesselink "Design and implementation of wearable head- up display for mobile phone applications" in Advances in Display Technologies II, San Francisco (2012)
86. Juan R. Maldonado and Piero Pianetta, SLAC National Accelerator Laboratory, Menlo Park, CA 94025, Yao-Te Cheng, Lambertus Hesselink, and R. Fabian Pease, Stanford University, Stanford, CA 94305, Yuzuru Takashima, University of Arizona, Tucson, AZ 85721, Chuong Huynh and Larry Scipioni, Carl Zeiss NTS, Inc., Peabody, MA 01960, CsBr based photoelectron nano sources (2012)
87. Y. Takashima, L. Hesselink. "Design and implementation of multi-layer and multi-bit micro holographic optical data storage employing blue lasers", SPIE Current Developments in Lens Design and Optical engineering XIII 8486 OF (2012).
88. Y. T. Cheng, L. Hesselink, R. F. Pease, J. Maldonado, Y. Takashima, C. Huynh, and L. Scipioni, "Nanoscale Photoelectron Emission Using C-shaped Nanoapertures with Cesium Bromide Photocathode", The 56th International Conference on Electron, Ion, and Photon Beam Technology and Nanofabrication (2012).
89. Yao-Te Cheng, Juan R. Maldonado, Yuzuru Takashima, Chuong Huynh, Larry Scipioni, R. Fabian Pease, and Lambertus Hesselink, "Nano-scale multiple-axis photoelectron source using focused helium ion beam fabricated C-aperture nano-tip", Photonic West 2012, San Francisco, CA
90. Yao-Te Cheng, Juan R. Maldonado, Yuzuru Takashima, Chuong Huynh, Larry Scipioni, Lambertus Hesselink, and R. Fabian Pease, "Nanoscale photoelectron emission using C-shaped nanoapertures with CsBr photocathode", EIPBN 2012, Waikoloa, HI
91. P. Hansen, J. Piper, L. Hesselink, "FDTD Optimization of Near Field Optical Transducers", SPIE Photonics West, San Francisco (2012)
92. Juan R. Maldonado and Piero Pianetta, Yao-Te Cheng, Lambertus Hesselink, and R. Fabian Pease, Yuzuru Takashima, Chuong Huynh and Larry Scipioni, "CsBr based photoelectron nano sources" (2012)
93. L. Hesselink, "DPC Imaging using novel X-ray Source Array", DHS Annual Meeting, Raleigh NC, October (2012)
94. C Scalo, SK Lele, L Hesselink, "Acoustic streaming and its modeling in a traveling-wave thermoacoustic heat engine", 7th AIAA Theoretical Fluid Mechanics Conference, AIAA 2014-3339, Atlanta, GA, 16-20 June (2014)
95. Jeffrey Lin, Carlo Scalo, Lambertus Hesselink, "High-fidelity simulations of a standing-wave thermoacoustic-piezoelectric engine", 67th Annual Meeting of the APS Division of Fluid Dynamics, San Francisco, California November 23–25 (2014)
96. J. Ryan, Y. Zheng, P. Hansen, T. Huang, and L. Hesselink, "Simultaneous Transport of Multiple Nanoparticles Across a Patterned Plasmonic Substrate," CLEO 2015, San Jose, CA (May 10-15, 2015)
97. Y. Cheng, J. R. Maldonado, P. Pianetta, R. F. Pease and L. Hesselink, "Colored cesium halide photocathodes excited by 405 nm irradiation", EIPBN 2015, San Diego, CA. (May 26-29, 2015)
98. J. Lin, C. Scalo, and L. Hesselink, "High-fidelity simulations of a standing-wave thermoacoustic-piezoelectric engine", Third international workshop on thermoacoustics., University of Twente, Enschede, Netherlands (October 26-27, 2015)

99. J. Lin, C. Scalo, L. Hesselink, "Modeling of piezoelectric energy extraction in a thermoacoustic engine with multi-pole time-domain impedance," 68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, MA (November 22-24, 2015) (in Bulletin of the American Physical Society Volume 60, Number 21, A7.00008)
100. D. Akemeier, Z. E. Russell, R. Edgington, Y.T. Cheng, L. Galambos, W. F. Aitkenhead, L. Hesselink, "Development of a Nanocrystalline Diamond (NCD) Membrane for Vacuum Pressure Separation and Patterned Electron Beam Image Transfer", EIPBN 2016, Pittsburgh, PA (June 3, 2016)
101. P. Padhy, P. C. Hansen, J. D. Ryan, M. A. Zaman, T. W. Huang, and L. Hesselink, "Effect of Substrate in Optical Trapping of Metallic Nanoparticle on Nano Apertures and Engravings " in poster, CLEO 2016, San Jose, CA, (June 8, 2016)
102. J. Lin, C. Scalo, and L. Hesselink. "Bulk Viscosity Effects on Ultrasonic Thermoacoustic Instability." In Bulletin of the American Physical Society, 69th Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR (November 21, 2016)